

Annual 1981-82 *Report*



Alcoholism and Drug

ADDICTION RESEARCH FOUNDATION

LETTER OF TRANSMITTAL

To:

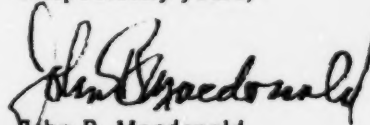
THE HONOURABLE LARRY GROSSMAN, Q.C.

MINISTER OF HEALTH

PROVINCE OF ONTARIO

The Alcoholism and Drug Addiction Research Foundation, of which I have the honor to be chairman, is pleased to submit through you to the Members of the Provincial Legislature this report on the Foundation's activities in the year ending March 31, 1982.

Respectfully yours,

A handwritten signature in dark ink, appearing to read "John B. Macdonald", written in a cursive style.

John B. Macdonald
Chairman
Alcoholism and Drug
Addiction Research Foundation

September 30, 1982

ANNUAL REPORT

1981-82



Alcoholism and Drug Addiction Research Foundation

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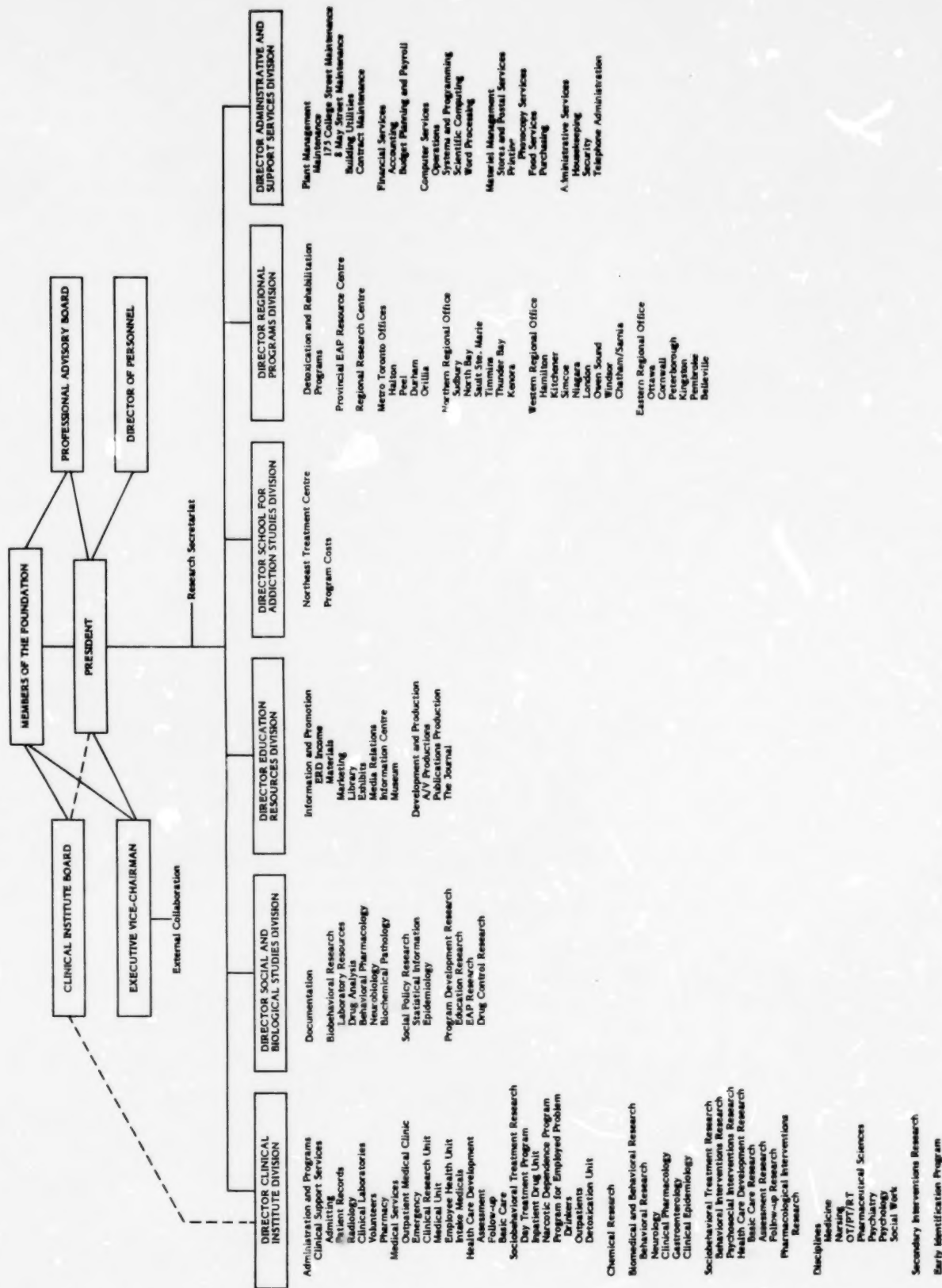
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*As of March 31, 1982

ORGANIZATION STRUCTURE



FOUNDATION ORGANIZATION

The Alcoholism and Drug Addiction Research Foundation is an agency of the province of Ontario which operates specialized research, educational, clinical, and service development programs throughout the province.

The Foundation is a crown corporation established by an Act of the Ontario Legislature and supported through the Ministry of Health through direct annual grants.

Responsibility for the Foundation's overall policies rests with the Members of the Foundation, a group of community representatives appointed by the Lieutenant Governor in Council. The Members, who serve voluntarily, appoint the President who is the chief executive officer. A Professional Advisory Board is appointed by the Members with the concurrence of the Lieutenant Governor in Council.

The Foundation's provincial headquarters at 33 Russell Street, Toronto, groups together the Division of Social and Biological Studies, the Clinical Institute, Education Resources Division, Administrative and Support Services Division, and part of the Regional Programs Division.

Across Ontario the Foundation maintains offices in 25 jurisdictions, whose primary responsibility is to assist communities to develop appropriate community-based services for the treatment and prevention of alcohol and other drug problems. These regional offices are supported by the Provincial Employee Recovery Program in Ottawa, designed to coordinate the Foundation's EAP efforts related to management and unions, and by the Regional Research Centre in London, which provides evaluation for the treatment service development efforts of Regional Programs. The guiding principle is to relate community programs to Ontario's developing system of regional and district health councils as well as to other forms of regionalization occurring in the education, justice, and social service fields.

The Foundation's School for Addiction Studies, located at 8 May Street, Toronto, offers training and educational courses to professionals whose work involves dealing with alcohol and other drug dependent persons.

THE FOUNDATION IN THE EIGHTIES

Over the past year, the Foundation has engaged in a careful review of its goals and specific program objectives as a basis for realigning its work and developing strategies to maximize its productivity for the people of Ontario.

Specifically, 1981-82 saw the revision of Foundation goals to provide direction for Foundation programs through much of this decade, and increased attention to the articulation of its various program areas so as to increase the effectiveness and efficiency of its operations. Furthermore, greater emphasis has been given to outreach in order to more effectively involve the community in treatment services development, public and professional education, and training programs which apply the Foundation's knowledge, skills, experience, and advice.

The Foundation's Goals

The appropriate starting point for the development of goals for the Foundation is the mandate described in *The Alcoholism and Drug Addiction Research Foundation Act* (1965) as follows:

- A. to conduct and promote a program of research in alcoholism and addiction;
- B. to conduct, direct, and promote programs for
 - i. the treatment of alcoholics and addicts
 - ii. the rehabilitation of alcoholics and addicts
 - iii. the experimentation in methods of treating and rehabilitating alcoholics and addicts
 - iv. the dissemination of information respecting the recognition, prevention and treatment of alcoholism and addiction.

The Foundation's role with respect to treatment was further clarified and focussed, with the agreement of the Minister of Health, in 1969*. At that time the

* *Policy and Planning for a Comprehensive Approach to Problems of Alcoholism in Ontario*, Addiction Research Foundation, 1969.

Foundation undertook to concentrate its treatment efforts within the framework of treatment research, a small number of demonstration treatment models, and education and training for health and social service personnel, rather than in widespread direct treatment service delivery. Additionally, the Foundation's responsibility was delineated in the area of advice and consultation to government and its various departments concerning the nature and number of programs required in various areas and ways of improving the quality of treatment, education, and research.

In 1981-82, the Foundation reviewed and updated its goals, formulating its new goals to be consistent with this framework and also consistent with its current knowledge base, available resources, and capacity. Although each goal represents an important component of the Foundation's long-term plan, the goals should not be viewed as mutually independent; rather they are closely interrelated.

In summary, the updated Foundation goals are as follows*:

1. To support the development by various levels of government, but especially the Government of Ontario, of an alcohol control policy and regulatory measures which take into account public health aims;
2. To determine and improve the effectiveness and efficiency of treatment for individuals who have problems associated with alcohol use;
3. To increase the knowledge needed for the development of methods to prevent or ameliorate problems arising from the use of drugs**, and to develop and test methods to achieve abstinence or less hazardous use. Particular attention will be given to cannabis, tobacco, and benzodiazepines;
4. To develop and conduct treatment programs that are models for the health care system and to offer to all individuals with alcohol- and drug-related problems presenting to the Clinical Institute, primary care, comprehensive sociobehavioral and medical assessment, specialized treatment (as indicated, and including referral to existing community treatment programs), and aftercare;
5. Through collaboration with District Health Councils and other relevant agencies to establish on a province-wide basis community-based systems for the comprehensive management (including identification, assessment, primary care, referral, specialized treatment when indicated, and follow-up) of individuals with alcohol- and drug-related problems;

* A more detailed statement of the Foundation's goals is provided in the document *The Mandate, Functions, and Goals of the Addiction Research Foundation*; Addiction Research Foundation; 1982.

** Throughout this chapter the term "drug" refers to psychoactive substances other than alcohol, usually with dependence liability, and includes, for example, amphetamines, barbiturates and non-barbiturate hypnotics, benzodiazepines, cannabis, hallucinogens, narcotic analgesics, tobacco, and volatile solvents.

6. To increase the effectiveness of identification and referral for assistance of individuals in Ontario's workforce whose alcohol- and drug-related problems are interfering with their work performance;
7. To improve the knowledge base needed to reduce the prevalence of alcohol- and drug-related traffic accidents;
8. To increase the knowledge and skills of professionals and other workers with respect to prevention, treatment, and research in the alcohol and drug field, through the development and operation of education and training programs;
9. To increase public knowledge and awareness of the effects of alcohol and drugs, the health, economic, social, and other consequences of their problematic use, and to encourage the adoption of preventive measures through the identification of public health benefits;
10. To contribute to the development of national and international strategies for the control of alcohol and drugs, and for the prevention of alcohol- and drug-related problems.

Interaction of the Foundation's Program Functions

Functionally, the Foundation's programming encompasses five major areas:

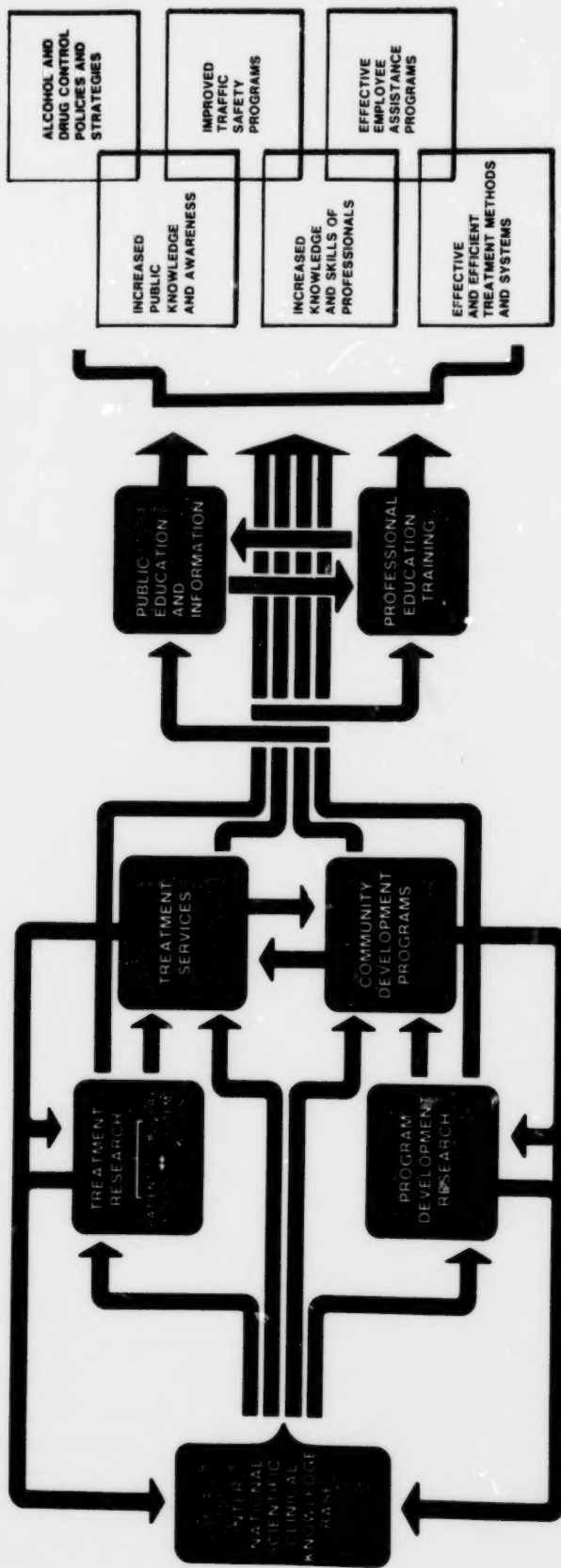
- program development (prevention) research
- treatment research
- treatment services
- community development programs
- education, training, and information programs.

However, these functional areas are not independent and isolated but increasingly interactive as represented schematically in Figure 1 (see page 4). Indeed, the unique strengths of the Foundation's programs are attributable in part to such articulation.

As indicated in this figure, the Foundation's treatment services, community development activities, public and professional education, training and information programs, and policy advice are designed to be consistent with the Foundation's broad and current knowledge base, including recent research findings. Such programs are, in turn, selectively subject to research evaluation. In effect, these programs are the means by which the Foundation's collective knowledge, including that derived from its own internationally recognized research efforts together with those of the larger research community, are applied to the benefit of the communities and residents of Ontario. As a consequence, the Foundation's programming is characteristically innovative and subject to change as a result of new knowledge and efforts to increase effectiveness and/or efficiency.

Figure 1

A SYSTEMS FRAMEWORK FOR A.R.F. PROGRAMMING



Further, the breadth of the Foundation's programming and the effective interactions of its programs permit the pursuit of research lines in a carefully planned continuous manner from *in vitro* and laboratory animal studies through clinical trials, so that the potential clinical benefits of the Foundation's research efforts may be carefully assessed. Such continuity of research programming is particularly facilitated by the existence of the Clinical Institute as a tertiary care teaching hospital and clinical research facility.

Finally, the overall efficiency of the Foundation's efforts is increased by the interaction of its various program elements. For example, in the Clinical Institute, treatment services are provided within a treatment research context. This interrelationship between treatment and clinical research ensures that treatment program designs reflect current knowledge and will yield new information concerning treatment approaches. It also gives rise to a "multiplier effect" since many staff members, including the majority of senior staff, contribute simultaneously to both treatment service and treatment research functions. As a consequence, the cost of the uniquely "research" elements of the Clinical Institute's treatment research programs represents a relatively small increase over the costs which would be associated with the operation of a non-research based treatment program of comparable quality. Similarly, the involvement of Foundation scientists and clinicians from various disciplines in the regular scientific/professional "quality control" review of Foundation print, audio, and visual educational and informational materials and in the Foundation's professional education/training programs exemplifies the efficiencies inherent in the Foundation's broad-based operations.

Outreach into the Community

The Foundation has a tradition of involvement in the community, most notably through its community-based consultants, its public information and educational activities, professional education and training programs, involvement with police forces in traffic safety programs, and consultation with business, industry, and labor with respect to employee assistance (recovery) programming.

In recent years, the Foundation has increasingly focussed such programming so as to increase its cost effectiveness. For example, consistent with its 1969 commitment to provide advice and consultation on treatment services on a province-wide basis, and also with the findings of its Task Force on Treatment Services*, the Foundation designed and is currently implementing a plan of action directed to the development of cost effective systems of treatment services across Ontario for persons with alcohol- and drug-related problems. Accordingly, the Foundation has provided, within the framework of this program, systematic assessment of community needs locally, consultation and collaboration with District Health Councils and other important community organizations and resources and, more recently, alcohol- and drug-related training for staff of local community resources, and program evaluation research efforts. Within the context of this program, which involves collaboration by four of its six divisions, the Foundation was involved in cooperative planning and programming with 23 of Ontario's District Health Councils in 1981-82.

* *The Treatment of Alcoholics: An Ontario Perspective*; Report of the Task Force on Treatment Services for Alcoholics, Addiction Research Foundation, 1978.

In a similar way, the report of the Foundation's Task Force on Alcohol Public Education and Social Policy* provided a base for the development of a systematic plan of action for the Foundation's public education efforts. This "Plan for the '80s" recognizes the need for selective targeting of such public education efforts and, if the available resources are to be optimally invested, the need for effective collaboration between the Foundation and other community forces including government, educational systems, mass media, community opinion makers and influencers, and various special interest groups.

Summary

In summary, the Foundation's international reputation and unique strengths derive, at least in part, from the multi-faceted nature of its mandate, the research dimension of its programming, and the articulation of its various functions--research, treatment services, community development programs, and education, training, and information programs. With its updated goals providing general directions for its activities, the Foundation in the '80s is committed to working with and through the community toward cost effective and efficient treatment services and prevention programming.

Joan A. Marshman,
President.

* *Alcohol Public Education and Social Policy*; Report of the Task Force on Public Education and Social Policy; Addiction Research Foundation, 1981.

RESEARCH

The ARF research program is multidisciplinary, broad-based, and collaborative both within and across the Clinical Institute, the Regional Programs, and the Social and Biological Studies Divisions. Collaborative work is not confined to intramural projects, however, but also involves scientists from a number of Ontario universities and hospitals who share particular alcohol and drug research concerns.

Another vital dimension of research collaboration has been the ongoing involvement of ARF scientists with community-based staff and activities throughout Ontario over the years. Current examples of this valuable interface of research and program activities are the development of effective alcohol and drug education curricula and their implementation in Ontario schools and the development of relevant occupational programs in business, government, and industry throughout the province. Such involvement of scientists with community programs further exemplifies the concept and the reality of effective articulation of Foundation research with practical social outcomes.

In fact, all Foundation research is, at root, program development research aimed at the development of solutions to the vast array of problems that are confronting society with increasing incidence and severity as a result of inappropriate alcohol and drug use.

A brief account of all major current ARF research programs and projects is documented in this chapter.

CLINICAL INSTITUTE DIVISION

The Clinical Institute continues to identify as its primary objective the conduct of research to improve the effectiveness and efficiency of treatment. Such treatment research should have a sound scientific rationale, should not expose patients to unacceptable hazards or risks, and should have the potential to develop new treatment approaches that are more effective and more efficient than existing treatments. These can then be applied to large groups of patients in the evolving Ontario health care system. In addition, there is an ongoing commitment to determine the efficacy and safety of widely used but unproven treatments.

SOCIOBEHAVIORAL RESEARCH

Sociobehavioral research involves the investigation of behavioral, psychological, physical, and social/environmental factors that contribute to alcohol and drug problems. The emphasis in this research is on applying such knowledge to define effective treatments as they affect individuals and their environment, and, as well, to provide efficient systems for both the delivery and the evaluation of such treatments. The Sociobehavioral Research Department consists of the Behavioral Intervention Research Program, the Psychosocial Intervention Research Program, and the Health Care Systems Research Program. Accomplishments in specific areas of this research effort are outlined below.

Treatment and Treatment-Related Research

Marital Systems Study

Alcohol problems on the part on one or both spouses can adversely influence the marital relationship and conversely the marital relationship can influence drinking patterns and problems. This study is evaluating the efficacy of systems-based conjoint therapy offered on an outpatient basis to couples for whom alcohol abuse has been identified as a primary problem. Using random assignment to treatments, couples undergoing brief communication/interaction-based conjoint treatment are being compared with a control group in which comparable couples receive a single session of advice. Data emerging thus far from this ongoing study have revealed that married clients offered the conjoint therapy program are more likely to enter, continue in, and complete therapy than married clients offered individual treatment consisting of a similar number of sessions. Preliminary six-month follow-up data, nearly completed, will compare the efficacy of the systems-oriented treatment with the single session comparison treatment.

Alcohol Relapse Prevention Program

Treatment intervention strategies that are effective in initiating behavior change in an individual frequently fail to maintain this change over time and across different situations. This failure to maintain behavior change is a major concern in the alcoholism treatment field, where relapse rates are high. Bandura's self-efficacy theory provides both a testable framework for conceptualizing the phenomenon of alcohol relapse and a basis for the design of therapy aimed specifically at the maintenance of behavior change in the post-treatment period. (Bandura's theory would predict that a patient's degree of confidence that he/she will be able to handle a drinking situation is a reliable indicator of future drinking behavior.) The recently initiated Relapse Prevention Program involves a randomized control group trial of two aftercare programs--one based on therapy interventions derived from self-efficacy theory and the other on more traditional group therapy procedures. An additional objective of the project is to relate to treatment outcome a measure of clients' perceived "self-efficacy" with regard to drinking situations. This project also includes the development of two psychometric instruments. The *Inventory of Drinking Situations* is designed to identify those types of situations in which an individual is most likely to drink problematically. The *Situational Confidence Questionnaire*, based on Bandura's self-efficacy theory, is designed to assess an individual's degree of confidence that he/she will be able to refrain from drinking in a variety of situations.

Community Support Project

The treatment of socially unstable, chronic heavy drinkers typically requires a large investment of resources and results in relatively small success. In the Community Support Project, a more cost-effective method of providing treatment, utilizing the services of volunteers, and emphasizing the development of community supports is being evaluated. In this controlled study, heavy drinkers of low social stability, who have identified for themselves the need to re-establish their community support network, are instructed in basic self-management skills. For one group, clients are paired with a volunteer, who meets the client regularly for a social or leisure activity, or to help the client find employment or housing or to meet other basic needs. All clients will be followed up at regular intervals over the year following treatment.

Factors Affecting Treatment Compliance

The failure of clients to complete a course of treatment is a significant problem for alcohol and drug treatment programs. If clients who are likely to drop out of treatment can be identified in advance, special efforts targeted at this group might reduce the rate of attrition. A group of 325 clients who attended the Clinical Institute's Assessment Unit prior to being offered one of several treatment programs have been followed through treatment to determine factors affecting their attendance. Initial attendance rate was found to be most affected by the length of delay experienced between assessment and the first treatment appointment. Other social and demographic variables affecting attendance are currently being evaluated.

Cross Study Research

Comparable sets of pretreatment and treatment outcome data are being collected for all clients participating in several sociobehavioral treatment research projects within the Clinical Institute. These combined data will be analyzed using multivariate statistical methods to evaluate, among other things: the interrelationships among pretreatment, treatment, and post-treatment variables in the prediction of treatment outcome; the stability over increasingly lengthy follow-up intervals of alcoholism treatment outcome results; the prediction of which clients will be abstinent and which will drink in a non-damaging manner at outcome and the long-term prognoses for each of these two outcome groups. Finally, the relationship between the use of alcohol and other psychoactive substances in outcome will be assessed.

Health Care Systems and Methodology Research

Alcohol Dependence Scale

A brief 29-item *Alcohol Dependence Scale* has been developed to measure the alcohol dependence syndrome--a central concept in the World Health Organization classification of alcohol-related disabilities. The scale has proved to be reliable and correlated in predictable ways with clinical attendance, physical symptoms, and psychosocial problems. The *Alcohol Dependence Scale* provides important information for treatment planning.

Problems with the Quantity-Frequency Method of Measuring Drinking Behavior

The quantity-frequency method, which is the most commonly used procedure for measuring an individual's drinking behavior, asks the individual to estimate his/her average pattern of alcohol consumption over a specified time interval. In this project, the drinking behavior of problem drinkers was assessed by the quantity-frequency method and also by a time-line method whereby individuals were asked to recall their actual day by day alcohol consumption over the identical time period. It was found that the quantity-frequency method obscures the identification of some persons whose drinking behavior has adverse health consequences (e.g. cases in which an individual has sporadic days of very heavy drinking or drinks without a regular pattern).

Drug Abuse Screening Test (DAST)

The *Drug Abuse Screening Test* was designed to provide a brief instrument for clinical screening and treatment evaluation research. This instrument taps various consequences that are combined to yield a quantitative index of problems related to drug misuse. The DAST was found to have substantial reliability and concurrent validity, and to differentiate among clients with (a) drug problems only, (b) mixed drug/alcohol problems, and (c) alcohol problems only.

Identification of Alcohol Abuse

This multidisciplinary project is aimed at determining psychosocial and biomedical factors that are early indicators of alcohol abuse. If individuals can be identified earlier in the course of developing alcohol problems, successful treatment might be accomplished with less intensive methods than are required for those identified at more chronic stages of the disorder. Populations being studied include (a) a clinical sample of alcohol abusers, (b) patients in general medical practice, (c) military personnel, (d) abstainers, and (e) low intake social drinkers. This project is also examining the relationship between alcohol consumption and clinical evidence of morbidity.

Measures of Lifetime Drinking History

A structured interview instrument, the *Lifetime Drinking History*, has been developed to provide quantitative indices of an individual's alcohol consumption patterns from the onset of regular drinking. This instrument, which was found to have high test-retest reliability, is also being used to examine relationships between lifetime drinking indices and biochemical abnormalities (especially liver function), physical signs and symptoms, medical history, neuropsychological functions, and psychopathology.

Computer-Assisted Testing

The Computer-Assisted Testing Project is evaluating the efficacy of computerized administration of standardized instruments. In an initial comparison within a clinical population, no significant differences were found in the reliability, level of alcohol problems or alcohol consumption patterns reported across three

assessment formats: computerized administration, self-report questionnaire, and face-to-face interview.

Patterns of Alcohol Use over Time

This project is aimed at identifying subtypes among the problem drinker population in terms of patterns of drinking prior to treatment and after treatment, and linkages between these two sets of patterns. Alcohol use data for a 12-month pretreatment period and an 18-month period following the initiation of outpatient treatment are being analyzed by means of *Modal Profile Analysis*, a technique that, in this case, searches for common patterns of alcohol use over time. The reliable identification of subtypes could suggest appropriate treatment strategies for different types of problem drinkers.

BIOMEDICAL AND BIOBEHAVIORAL RESEARCH

Biomedical and Biobehavioral Research in the Clinical Institute comprises four biologically-oriented research programs. These are Behavioral Pharmacology, Clinical Pharmacology, Gastroenterology, and Neurology. The primary emphasis of these programs is research into the behavioral and pharmacological antecedents and consequences of alcohol and drug abuse (including the normal regulatory mechanisms of alcohol, tobacco, and other drug consumption). There is a major emphasis on the toxic or pathological consequences of alcohol and drug use--especially on the brain and the liver--and on the development and evaluation of rational and effective treatments, both for the dependence disorders themselves and for their clinical consequences.

Behavioral Pharmacology Research

Behavioral Pharmacology Research emphasizes interactions between behavioral and biological variables. Its research projects are directed towards understanding the mechanisms involved in drug abuse and the consequences of drug abuse and towards developing effective methods for the treatment of this problem. Both human and animal studies are being conducted in this area.

Neuropsychological Studies of Alcoholism and Drug Dependence

Behavioral Pharmacology has a long-term commitment to the study of neuropsychological deficits associated with alcohol and drug abuse. Evidence of significant brain abnormalities in chronic alcoholics at all ages has been documented and it has been found that these abnormalities are partially reversible with abstinence. The current emphases of this research are: to continue the controlled study of the reversible aspects of the alcohol organic brain syndrome; to study the effects of the "anti-alcohol" drugs--disulfiram and calcium carbimide--on the process of reversible brain dysfunction in alcoholics after detoxification; and to assess the nature of the memory deficit in amnesic (Korsakoff's) alcoholics.

A major study of the neuropsychological and neurological consequences of solvent abuse has been completed and its findings published. Long-term heavy use is associated with a profound motor disturbance and impairment of both memory and some cognitive abilities.

Work is also planned on cognitive deficits produced by benzodiazepines.

Learning Mechanisms in Drug Dependence

The single line of animal research in this program examined the contribution of learning factors--in particular Pavlovian conditioning--to drug tolerance and abuse. Conditioning has broad effects on the response of animals to drugs: as a result of learning, animals can be conditioned to experience either a diminished or augmented response to a drug. The mechanism underlying these phenomena has suggested a theory of relapse to drug use that relates the work on animals to the behavior of human alcohol and drug abusers. While the animal research continues to expand our understanding of these mechanisms, work is also being planned to test the application of this theory in the treatment of alcoholism.

Treatment of Alcohol and Drug Abusers

Behaviorally-oriented treatment strategies are currently being applied in a number of contexts in a systematic attempt to determine optimal treatment methods for multiple drug abusers.

Three hundred young multiple drug abusers have received treatment in a project in which three behavioral treatments for such persons are being experimentally evaluated. The project is now in the follow-up phase of the evaluation and the initial results will be available within a year. In addition, the project has yielded the most complete information yet generated on patterns and quantities of drug consumption by drug abusing youth in Ontario. No such large scale experimental evaluation of treatment of this population has ever previously been reported.

In a study of early-stage problem drinkers, the feasibility of abstinence and controlled drinking goals was compared. Patients were randomly assigned to a goal of abstinence or controlled drinking and were instructed in behavioral methods of self-control to achieve these goals. Early follow-up indicates that controlled drinking was the most acceptable goal to patients; controlled drinking subjects were more able to abstain when asked to do so during treatment and also drank less frequently during treatment. Follow-up data at three months post-treatment showed that the majority of subjects in both the abstinence and the controlled drinking condition were drinking in a non-problematic fashion. Follow-up is continuing. An abbreviated version of the self-control program will be tested within a family practice unit with physicians acting as therapists.

Clinical Pharmacology Research

Clinical pharmacology research is currently exploring new and/or improved drug treatments for alcoholism, is examining the clinical toxicity of psychoactive drugs, and is exploring the pharmacological mechanisms of addictive behaviors.

New Treatments for Alcoholism

Aversive Agents. Studies for determining the mechanism of the aversion in the disulfiram-ethanol reaction (DER) and carbimide-ethanol reaction (CER) are continuing. In addition, new pharmacological agents are being explored and characterized for eventual clinical use. A placebo-controlled, randomized, double-blind study for assessing the efficacy and toxicity to disulfiram and calcium-carbimide is underway.

Zimelidine Effects on Alcohol Consumption. Placebo-controlled, randomized, double-blind studies for assessing the efficacy and safety of zimelidine for decreasing alcohol consumption are underway. In addition, the mechanism of effects is being explored in human and animal studies. Preliminary results suggest the zimelidine induces a dose-related decrease in alcohol consumption in rats.

Pharmacotherapy of Alcohol Withdrawal. Recent randomized, double-blind, placebo-controlled studies have shown that patients with mild/moderate withdrawal can be effectively treated with non-pharmacologic supportive care. Pharmacotherapy is usually required for patients with severe withdrawal. Therapy can be simplified by giving loading doses of diazepam and taking advantage of the pharmacokinetic tapering afforded by the long half lives of the drug and its metabolites. With these simple non-pharmacologic and pharmacologic treatments most patients improve uneventfully within 36 hours.

Clinical Toxicity of Psychoactive Drugs

Studies include:

1. The assessment of the mechanism and extent of the interactions between ethanol and several commonly-used psychoactive drugs (e.g. amitriptyline, triazolam). Results indicate that these drugs interact significantly with ethanol, which may have adverse clinical consequences.
2. Study of the clinical relevance of the impaired drug disposition described in cirrhotics. Recent findings suggest that, contrary to expectations, the most common and most severe adverse drug reactions in patients with liver disease are caused by pharmacodynamic mechanisms and by drugs for which the metabolism is not impaired (e.g. furosemide).
3. Patterns of drug overdose and abuse have been studied. Results indicate that benzodiazepine use and abuse is common and that multiple drug use in overdose and abuse is increasing.

Pharmacological Mechanisms of Addictive Behaviors

A major line of research is the study of the mechanisms and safety of new pharmacological treatments for decreasing alcohol consumption (e.g. zimelidine). The capability for testing other new compounds in animals and humans is being developed. The relationship between drug elimination and manifestations of physical withdrawal to ethanol and benzodiazepines is under investigation.

Recent studies suggest that physical dependence on sedative drugs (e.g. zopiclone) can be detected in health volunteers exposed to therapeutic dosage regimens by using sensitive testing procedures. The application of these procedures to assess the dependence liability to benzodiazepines will be further explored.

Collaborative Research of Behavioral and Clinical Pharmacology

The major lines of collaborative research between Behavioral and Clinical Pharmacology are:

1. Tobacco and Smoking Research; and
2. Benzodiazepine Research.

Tobacco and Smoking Research (with Biomedical Engineering, University of Toronto)

The aim of the program is to develop a better understanding of the factors which govern acquisition, maintenance, and cessation of tobacco use, and to develop more effective treatment strategies for smoking cessation.

1. Techniques have been developed for measuring the yields of nicotine, carbon monoxide, and tar from cigarette smoke, and for measuring nicotine concentrations in biological specimens (e.g. human plasma).
2. The recently-completed instrumentation for measuring puff-by-puff effects on the central nervous system (CNS) through high-precision computer analysis of eye movement parameters holds particular promise. Measures of such CNS effects are necessary to permit the investigation of tolerance and dependence at different phases of the individual's tobacco-use history.
3. Our latest findings suggest that the use of "low-yield" cigarettes is of limited utility in reducing the risk to individual smokers because consumption often increases to compensate for the low yield. Furthermore, many smokers undermine the potential benefit of ventilated filters by blocking the air vents with their lips or fingers, thus raising their actual exposure to nicotine, carbon monoxide, and tar.
4. Techniques that smokers can use to monitor how much smoke they ingest are being investigated. One of these is a color-matching technique, already developed, that permits the individual smoker to estimate smoke exposure from the darkness of the stain left on the mouth-end of the cigarette filter.
5. In the coming year, further studies of smoking cessation will be undertaken, including a trial of chewing gum which contains nicotine.

Benzodiazepine Research

Benzodiazepines are the most commonly prescribed psychoactive drugs. Recent studies suggest that these drugs can induce tolerance as well as psychological and physical dependence in humans. The following aspects of this problem are being assessed:

1. pattern of abuse;
2. characterization of the clinical course and treatment of benzodiazepine withdrawal;
3. neuropsychological impairment associated with chronic benzodiazepine exposure; and
4. development of pharmacological and psychological rationales for decreasing benzodiazepine use or for achieving abstinence.

Gastroenterology Research

Gastroenterology research continues to focus on alcoholic liver disease, its causes and treatment. In addition to the programs listed below, Gastroenterology works collaboratively with Biochemical Research on several experimental research projects. (See Biochemical Research.)

Propylthiouracil (PTU) Trial

Propylthiouracil is currently being used in a clinical study to determine its effectiveness as a treatment for alcoholic liver disease. The trial is entering its third year, with more than 290 patients having entered it.

Disposition of Propylthiouracil (PTU) in Patients with Alcoholic Liver Disease

This research has shown that there is a reduction in the clearance of PTU in patients with severe liver disease. Furthermore, it indicates that the dose of PTU required to produce metabolic effects may vary depending on the severity of the liver disease. The results of this investigation suggest that, with improvement, after about a month of treatment the dose of PTU might need to be increased to maintain the same effect.

Effects of Drinking and of Abstinence from Alcohol on the Severity of Alcoholic Liver Disease (ALD)

The effects of periods of drinking versus periods of abstinence on alcoholic liver disease are not fully understood and are currently being analyzed as measured by the *Combined Clinical and Laboratory Index* (CCLI) among placebo patients. This project is taking advantage of the fact that the propylthiouracil trial is being controlled for drinking through determination of alcohol in urinary specimens mailed in on a daily basis by the patients.

Statistical Analysis

Considerable effort has been invested in validating the CCLI (*Combined Clinical and Laboratory Index*). At present, there is no good system of parameters to assess the prognosis and the severity of alcoholic liver disease (ALD). Without such a system, the determination of the efficacy of treatment, or the possibility of

correlating biological events with the severity of liver disease, are both seriously curtailed.

Evidence has been obtained that the CCLI provides a reliable and efficient scoring system for severity. Further, it is the only parameter whose intensity is linearly related to mortality. This permits the assessment of the effects of treatment even in patients with moderate or mild degrees of ALD. Thus, it is now clear that the CCLI provides a very good tool with which to assess not only clinical trials but also to correlate different abnormalities or biological phenomena (i.e. clearance of drugs) with the degree of liver dysfunction. Also, the prognostic significance of a series of the most commonly-used clinical or biochemical parameters of liver dysfunction has been analyzed.

*Alcoholic Liver Disease (ALD) and Levels of Blood Lactate;
Rate of Alcohol Metabolism and Liver Prolylhydroxylase Activity in
Patients with Alcoholic Liver Disease*

Patients with different degrees of ALD were studied and it was found that the rate of alcohol metabolism did not correlate with the severity of alcoholic liver disease and that it was inversely related to the increase in lactic acid (lactate) observed after infusion of ethanol. This research supports the hypothesis by ARF investigators that alcohol metabolism in alcoholics is not limited by the amount of alcohol dehydrogenase in the liver but rather by the rate at which intermediate compounds (reducing equivalents and lactic acid) are oxidized in the liver.

*Correlation between Anemia, Blood Gases, and Collagen Accumulation
in the Space of Disse*

According to the postulate that the death of liver cells/tissue (necrosis) in alcoholic liver disease results from hypoxia (reduced oxygen supply) in Zone III of the liver acinus, anemia or decrease in oxygen tension in blood and collagen in the space of Disse should result in further hypoxia and in more necrosis. It has been found that the intensity of necrosis in liver biopsies correlates with both anemia (Hb and hematocrit) and with the accumulated collagen in the space of Disse. Moreover, it appears that these two factors interact and that collagen in the space of Disse makes the liver more susceptible to degrees of anemia that otherwise are not accompanied by cell necrosis.

Portal Hypertension and Hepatocyte Surface Area

The classical explanation for the production of portal hypertension in alcoholic liver disease is that this abnormality results from the mechanical compression of the outflow venous tract of the liver by the expanding "regenerative" nodules.

An alternative explanation of portal hypertension has been put forth by scientists of the biochemical research and gastroenterology programs as a result of their observations. This postulate is that portal hypertension is the result of compression of the sinusoid in the liver by edematous, enlarged hepatocytes. It has been found that there is a striking correlation between hepatocyte surface area and the height of portal pressure. Furthermore, portal hypertension does occur in the absence of regenerative nodules and, therefore, in the absence of cirrhosis and, conversely, a substantial number of cirrhotics do not present portal hypertension.

The finding that this complication is related to a more functional rather than permanent mechanism offers the possibility that by determining the factors that are responsible for the alcohol-induced increase in cell volume, a treatment might be found for portal hypertension.

Patient Deterioration after Hospital Admission and its Possible Relationship to Intensity of Withdrawal

About 15% of our patients admitted to hospital with alcoholic liver disease deteriorate within 7 to 14 days after admission despite abstinence from alcohol. This period of increasing severity is followed by another of recovery. This phenomenon is being investigated by ARF scientists. As withdrawal entails stress, and stress has been shown to increase oxygen consumption by the liver, it appears possible that this added increase in oxygen consumption by a liver that is already consuming more oxygen (because of the effect of alcohol) could result in further hypoxia and necrosis of Zone III and therefore a worsening of the clinical status of the patient.

Gastrointestinal Permeability after Alcohol Ingestion

Using PEG-400 (polyethylene glycol) as a chemical marker, it was found that ethanol increases the permeability of the gastrointestinal tract both in chronic alcoholics during intoxication and in non-alcoholics after a small dose of ethanol. An implication of this study is that in the presence of ethanol, there may be an increased absorption of endogenous toxic metabolites (from the circulation) resulting in deleterious effects in the liver and/or other organs. The increase in permeability might also result in increased absorption of other drugs by the liver (or other organs) when such drugs are taken simultaneously with small amounts of ethanol.

Hepatic Encephalopathy

Hepatic encephalopathy is a brain disorder produced in the terminal stages of alcoholic liver disease and characterized by reduced alertness and consciousness which may progress to deep coma. This study explores the possibility that certain toxic substances of either endogenous or exogenous origin may exist in the circulation of patients with portal systemic encephalopathy. If such toxins are detected in the serum of these patients, it will then be important to discover their role in the etiology of this pathological condition.

Neurology Research

The major research focus of this program continues to be alcohol-induced human and animal brain damage, its potential reversibility, and the neurophysiological basis of intoxication.

Alcohol- and Drug-Induced Brain Damage

Brain damage secondary to alcohol abuse is a very common problem clinically; however, with maintained abstinence, significant functional recovery can occur. A controlled human study as well as cellular neurophysiological and morphological laboratory investigations are underway, with the aim of determining the pathogenesis of alcoholic brain damage and with the ultimate goal of developing a more rational treatment approach. In the past year, the investigators have analyzed a reasonable sample of repeat CT scans in recently abstinent alcoholics showing clearcut reversible cerebral atrophy in about 25%. They are now relating brain morphology changes to measures of behavioral improvement.

Laboratory investigations have revealed evidence of neuronal dendritic (fine nerve process) regrowth upon alcohol abstinence in rat cortical neurons; impaired neuronal inhibition and neuronal memory mechanisms; and altered neuronal membrane properties. The above findings have given rise to a new tentative hypothesis for the etiology of alcoholic brain damage: i.e. that chronically raised intracellular free calcium ion concentrations cause cell destruction in chronic alcoholics.

In collaboration with the Gastroenterology Section, the clinical and pathophysiological characteristics of hepatic encephalopathy are being studied.

Movement disorder in chronic alcoholics. This research program has previously demonstrated a reversible Parkinsonism in alcoholics; in the past year, a reversible dyskinesias (similar to tardive dyskinesias) has also been shown in a small group of alcoholics. (Until now, only one instance of the latter has been reported in the literature.)

Mechanisms of Acute Intoxication by Abused Psychoactive Drugs

The laboratory of the Neurology Section is examining the mechanisms of intoxication utilizing intracellular recording techniques in isolated cerebral neuronal preparations.

Acutely administered mildly intoxicating doses of several abused sedative hypnotic drugs (ethanol, pentobarbital, benzodiazepines) showed similar effects on a neuronal inhibitory mechanism (enhanced calcium mediated potassium conductance). This finding may lead to a unifying hypothesis concerning that mechanism of action of those drugs that cause intoxication.

Phencyclidine and marijuana have been studied in the hippocampal slice preparation, both drugs showing neuronal excitation at pharmacologically relevant doses; and ethanol-neurotransmitter interactions have been examined in hippocampal slice neurons showing only augmentation of calcium (Ca^{++}) mediated inhibition.

BIOCHEMICAL RESEARCH

The Biochemical Research Program was established in the Clinical Institute to provide an interface between laboratory and preclinical/clinical research. Present priorities are: (1) the study of the mechanisms of interaction of alcohol with

essential biological processes in the development of alcoholic liver disease and (2) the creation of measures for the biochemical identification of alcohol consumption.

Effects of Alcohol Consumption on Essential Liver Processes and the Development of Alcoholic Liver Disease (ALD)

The investigators have produced evidence in animals that acute ethanol administration leads to an increase in portal blood flow in the liver, while chronic ethanol administration and withdrawal increases the resistance to this portal blood flow. Such changes are believed to contribute to the development of portal hypertension, a major cause of death associated with alcoholic liver disease. In addition, chronic alcohol consumption results in compression of the blood pathways through the liver due to alcohol-associated enlargement of hepatocytes. This is a new concept for the pathogenesis of portal hypertension developed recently by ARF scientists. In support of this, studies into the mechanism of hepatocyte enlargement induced by chronic ethanol administration indicate that 50% of the increase in intracellular water associated with the alcohol increased liver weight is osmotically linked to an accumulation of potassium ions (K⁺) resulting from an increase K⁺ cell pumping or a reduced K⁺ leakage. Another 50% is due to an as yet unidentified anion(s). Small molecular weight amino acids or peptides do not contribute to the excess osmotic activity.

Data in a model of liver cell expansion induced by solutions of low osmotic strength indicate that a compression in the relative extracellular space and resultant reduction in blood pathways leads to portal hypertension.

Investigations suggest that increased blood pressure in the liver vessels results in collagen deposition in the space of Disse. (Collagen fibres prevent the normal/healthy exchange of substances including nutrients between the cells and blood.) Recent studies support this postulate. Partial ligation of the hepatic vein in dogs quickly results in portal (and microvessel) pressure. Maintenance of pressures at high levels was found to lead to collagen deposition in the space of Disse.

Studies exploring the effects of ethanol on liver regeneration following partial (two-thirds) removal of the liver (hepatectomy) were completed and reported. It was found that the inhibitory effect of ethanol on liver regeneration reported by others is due to experimental artifacts derived from a wrong method for assessing regeneration and an incorrect method of expressing the results. After correcting for these methodological problems, it was found that regeneration was not affected by ethanol consumption.

Alcoholic Ketoacidosis (Toxic Excess of Lipid Fragments in the Circulation)

About one-third of the cases of ketoacidosis in general hospitals are of alcoholic etiology. A new finding by investigators in this program is that ketoacidosis in the livers of animals fed alcohol chronically could be completely and instantaneously abolished by administration of sodium pyruvate. This discovery may have relevance to the treatment of human subjects suffering from alcoholic ketoacidosis.

Biochemical Identification of Alcohol Consumption Levels

In the area of measurement of client/patient alcohol consumption levels, investigators have produced a dipstick for the determination of alcohol in biological fluids (urine, serum, and saliva). This method, which requires no special instrumentation or training, is able to quantitate ethanol in concentrations from 0 - 1500 mg/l along a six-point scale (0 to 5+). By this method (patent applied for) alcohol reacts in a paper strip containing alcohol dehydrogenase to yield a product which is further reacted with by a second enzyme to yield a visible color. Development of this methodology required a biochemical modification of the affinity of alcohol dehydrogenase such as to render it differentially sensitive to a wide range of ethanol concentrations such as the ones that can be present in biological fluids. It is expected that the dipstick will be of use in a variety of alcoholism programs and in epidemiological studies, since it provides easy immediate information on alcohol consumption.

Because of its high degree of reactivity, acetaldehyde may be involved in the production of new substances in the body that may be used as reliable markers (indicators) of alcohol consumption. Investigators are developing methodologies to determine any new condensate molecules containing acetaldehyde. A novel method has been developed to show whether any substance interacts with acetaldehyde to produce either stable or unstable products and the extent of such interaction. This methodology should be of importance in indicating which newly formed molecules can serve as identifiers of alcohol consumption.

Collaborative Research with Social and Biological Studies Division

The frequency of rib and vertebral fractures is being studied in alcoholic cirrhotics in different countries with the aim of producing an indicator of the pattern of alcohol consumption and of relative intoxication in these countries.

The effect of chronic ethanol consumption is being investigated on the longevity of an alcohol-preferring strain of mice.

REGIONAL PROGRAMS DIVISION--REGIONAL RESEARCH CENTRE

The Regional Research Centre coordinates and has responsibility for all research programs and research activities within the Regional Programs Division. The current research emphasis within Regional Programs is on the development and implementation of employee assistance programs across Ontario and with the development, implementation, and/or evaluation of educational programs and techniques within the primary and secondary school systems. The specific research programs carried out in the past year are listed below.

The Development and Implementation of Employee Assistance Programs (EAP)

In the past year, the Regional Research Centre undertook the examination of the nature and extent of Addiction Research Foundation staff involvement in business and industry in Ontario. Data from a survey that was conducted revealed active involvement by Foundation staff with 135 organizations in approximately 6%

of the Ontario labor force. ARF staff have assisted in the successful implementation of employee assistance programs in almost 60% of these organizations and work is progressing systematically towards this end in the remaining 40%. Data from the survey will assist in planning and will also serve as a baseline for assessing the Foundation's ongoing program effort in the area.

The impact of EAP efforts cannot be reliably assessed without a valid indication of alcohol problems in occupational settings. Unfortunately, existing prevalence estimates are based upon measures that are problematic. For this reason, the Regional Research Centre has embarked on a two-phase project, the first of which involves the development of a reliable instrument that will enable identification of persons in early as opposed to later or chronic stages of alcohol use. The second phase will involve use of the instrument in a large-scale prevalence study in various occupational settings. Once prevalence estimates become available, work related to program effectiveness can be initiated.

Education/Prevention Research

At present, there is no standardized, normative measure of alcohol knowledge, belief, or attitude which can be used to monitor public opinion of alcohol issues on an ongoing basis. This has led to a scarcity of data regarding the relationships among alcohol use, alcohol-related damage, and public attitudes in Ontario. There is also a need within the Foundation for a practical measurement device which can be used to facilitate the process of audience segmentation for public education programming, and which will aid in conducting outcome evaluations. Accordingly, the Research Centre has initiated a large-scale project which seeks to develop a set of normative measures of knowledge, belief, and attitudes toward alcohol use and alcohol problems. This will enable the Foundation to assess its public education efforts and to monitor public opinion in support of its social policy programming.

As part of the Foundation's effort to improve alcohol education curriculae in the school systems, the Regional Research Centre has been involved in the following projects:

The Evaluation of the Sheppard, Goodstadt, Torrance & Fieldstone Curricula:

Conclusions based on the results of this completed longitudinal investigation can be described in four general statements:

First, the programs were differentially effective or ineffective based on the students' initial drinking levels, grade level, and sex; they had many positive effects on the attitudes, motives, and behaviors of some groups of students, and negative effects on other groups of students.

Second, the multi-dimensional nature of the attitude concept within the realm of alcohol use became evident from the pattern of results that emerged. It was found that the alcohol education intervention influenced some of the attitude concepts but not others.

Third, changes in various measures frequently occurred that did not involve the interventions. This suggested that young students' attitudes, motivations, and behaviors (at least in grades 7 through 10, inclusive) are continually changing. Whether these changes occurred as a function of students' interactions among

themselves, family influences, messages in the media, or other factors, was not discernible.

Fourth, these curricula often exhibited their effects on student attitudes, motives, and behaviors only after a period of six months had passed. Perhaps this delay reflects the fact that time is required to consolidate the message, or that the message may not be accepted until the individual is confronted with the situation specifically addressed by it. In either case, it should be noted that some delayed effects did occur after a six-month period and that other effects may be found at one-year or two-year intervals whenever these students encounter relevant situations for the first time.

Evaluation of the Theatrical Performance "Booze": an Alcohol Prevention Approach:

Preliminary evaluation of a novel approach to alcohol education using the theatre as a vehicle for delivering the message was completed in the past year. The results suggested that the one-hour live theatrical performance was as effective in influencing attitudes, motives, and behaviors as were four one-hour presentations of material delivered in standard didactic manner.

These findings demonstrated definite relationships between attitudes, motivation, and behaviors in the area of alcohol usage. Secondly, they showed that alcohol programs can have an immediate impact on the drinking behaviors of adolescents. Finally, they demonstrated that a one-shot alcohol education program, if well developed and well presented, can be as effective as and less costly than a series of more formal presentations. The long-term impact of such a program is now being studied.

SOCIAL AND BIOLOGICAL STUDIES DIVISION

The Social and Biological Studies Division carries out research in a wide variety of disciplines, with the emphasis mainly on a search for the underlying causes of alcohol and other drug problems, and on the provision of a knowledge base for the primary prevention of such problems. The wide scope of research concerns in this Division includes, for example, laboratory investigations into alcohol-related pathologies such as cirrhosis and brain damage, developmental studies of alcohol and drug education curricula for schools, epidemiological studies of societal patterns of drug use and disease incidence, and the investigation of the impact of legislation and law enforcement agencies on the individual user, on drug consumption patterns, and on society at large. Work during the past year is summarized below for each of the main areas of research in the Division.

BIOBEHAVIORAL RESEARCH

Research in this area now focuses on the following major areas of investigation:

1. the mechanisms of development and loss of tolerance to and physical dependence on alcohol and other drugs;
2. organic consequences of heavy use of alcohol and other drugs;

3. mechanisms of reinforcement of drug self-administration; and
4. the development of analytical methods for the measurement of drugs in body fluids and tissues.

Studies in Tolerance and Dependence

During the past year, several continuing lines of research on neurophysiological, behavioral, and neurochemical aspects of tolerance and physical dependence have begun to converge, so as to provide an integrated model of the cellular basis of alcohol tolerance. This work may have wide-ranging implications for many types of adaptive change in the brain, including learning, habituation, and physiological homeostasis, as well as for alcohol and drug tolerance. Research on the interaction of serotonin and vasopressin-like peptides in the brain has continued. The prolongation of ethanol tolerance by a vasopressin derivative (DGAVP), and the requirement of an intact mesolimbic serotonin pathway for this effect to occur, have been confirmed with other tests of alcohol action. Current research is directed at defining the exact locus and mechanism of the DGAVP-serotonin interaction in the hippocampus.

The examination of alterations in brain protein metabolism during the development of alcohol tolerance was largely completed, and revealed that such alterations are mostly confined to a few specific proteins in brain subcellular membranes. These are being examined in greater detail by electrophoretic techniques which permit separation of the affected proteins from others which are unaltered.

A study has been completed which correlates the time course of development and loss of ethanol tolerance in the rat with that of alterations in various aspects of ATPase function and noradrenaline receptors in brain cell membranes. This work is elucidating the changes that occur in fat composition of the membrane during tolerance development, and opens up the possibility of therapeutic modification of these membrane changes.

Interesting findings on cross-tolerance between alcohol and morphine in isolated intestinal muscle of the guinea pig (see last year's report) have been extended to include endorphins, enkephalins, and naloxone, in order to elucidate the specific molecular mechanisms of cross-tolerance to alcohol in this drug combination. The problem has also been pursued in intact rats by examining the body temperature, narcosis, and motor impairment effects of opiates and barbiturates in two substrains of rat genetically selected for difference in innate tolerance to alcohol.

Mechanisms of Reinforcement of Drug Self-Administration

Research on mechanisms of tolerance and dependence has been decreased in the past year in keeping with the planned expansion of work on mechanisms of reinforcement of drug self-administration. The expanded program on the reinforcing ("rewarding") effects which generate sustained self-administration of drugs in animals and humans has made extensive use of two experimental animal models. One is the place preference model (mentioned in earlier reports) in which the rat is tested for its preference for a specific environment in which it has previously received a dose of active drug, versus a different environment in which it

has received a dose of inactive solution. The second model is a T-maze in which appropriate choice of response by the rat is rewarded by administration of morphine directly into the hippocampus. The second model appears to provide a better approach basically because the animals are actively choosing to receive or not to receive drug (i.e. more a self-administration type approach without extinction occurring on testing). It also appears to raise some questions regarding tolerance to euphoric drug effects. Should the conclusions regarding reliability of this model bear out with further testing, the paradigm will be useful in answering other questions about reinforcement with either intravenous administration or brain microinjections.

The mapping of effective sites of opioid reward in the brain has progressed well, and efforts have begun to determine whether these are sites at which endogenous opioids (endorphins) are essential mediators of reward pathways. This has been pursued by assessing whether naloxone blocks electrophysiological and behavioral changes due to stimulation of the putative opiate pathway. This study has some implications for determining the basic mechanism of opiate action in the hippocampus, but more importantly, identification of such an opiate-using pathway will allow its role in reinforcement to be assessed. This might be a step towards mapping a limbic reinforcement system. In contrast, further studies have confirmed clearly the aversive effects of alcohol in the rat, but have shown rewarding properties over only a narrow range of alcohol dosage, given in combination with food or other reinforcers. A new finding in the past year has been that changes in body sodium load have an inverse effect on the voluntary ingestion of alcohol by the rat; the possible relationship of this to reward mechanisms is being pursued further.

Studies of Potential Therapeutic Measures

A study of the reversal of ethanol-induced coma by naloxone, alleged in uncontrolled studies to be effective in humans, was carried out in the rat. No effect was found except at doses of naloxone that by themselves produced convulsions in the alcohol-free rat.

An animal study has also been completed of the production of tolerance and dependence by continuous intravenous administration of chlormethiazole, a drug used widely in Europe for the treatment of alcohol withdrawal symptoms. The drug was found to give rise very rapidly to tolerance as well as cross-tolerance to alcohol when given intravenously. Subsequently, the manufacturer suspended its plan to market chlormethiazole for use in treating alcoholics in Canada.

Studies of Drug-Induced Pathology

Earlier studies of the long-lasting residual effects of daily long-term cannabis intake on learning ability in the rat have been extended by the use of additional tests of learning. The spectrum of results is strongly suggestive of long-lasting--possibly permanent--hippocampal dysfunction. Future work will compare the relative susceptibilities of young and mature rats to these effects.

Research in the Drug Analysis Laboratory

The drug analysis laboratory has continued its program of developing new sensitive methods for quantitative analysis of drugs in body fluids and drugs in dosage form to aid researchers in the study of mechanisms of drug action in the brain and other organs. New methods have been developed for chlormethiazole and for propylthiouracil based on the use of high performance liquid chromatography (HPLC). Papers on earlier developments for measurement of morphine and barbiturates have been submitted for analysis.

Finally, the Street Drug Analysis Laboratory screened 320 samples this year, an increase of 15% over 1980-81, and published the results in its *Quarterly Street Drug Notes* for use by professionals and educators in the field. The largest single group of samples submitted was that of central stimulants.

PROGRAM DEVELOPMENT RESEARCH

Education Research

Education Research has continued its ongoing assessment of the level and nature of drug education throughout Ontario, as determined through the biennial Ontario student surveys. No significant improvement in coverage has been detected since 1977: the majority of students still report receiving little or no drug education.

A comprehensive study has been undertaken of cannabis use by Ontario students, their attitudes regarding its use, and motivations for using it. It is expected that this analysis will provide considerable assistance in the planning of further cannabis education materials.

An experimental study of alternative approaches to school-based education programs regarding cannabis for grades 7 through 10 has been initiated. Classroom materials, including 10-minute videotapes, have been developed which emphasize either (a) the health consequences, or (b) the legal consequences of cannabis use. Classroom testing of these materials will take place in the 1982-83 school year. It is expected that this research will have both theoretical and practical outcomes (in the form of new effective lesson plans for use by Ontario teachers).

The ARF *Alcohol Lesson Plans*, which were developed and evaluated in previous years, were modified and published as part of six special inserts in *The Journal*. It was established through careful follow-up research that at least 25% of all appropriate Ontario schools (i.e. with grades 7-8 or 9-10) have used the original *Alcohol Lesson Plans*; 20% of all such schools have utilized the special *Journal* insert.

Occupational Programs Research

In the past year, the attempt has continued to broaden the scope of investigations to encompass the evaluation of a more comprehensive spectrum of

interventions concerned with the prevalence, incidence, prevention, or remediation of alcohol- and drug-related problems in the workplace.

Activities have included the following:

1. Ongoing evaluation of an employee assistance program in a large transportation company. This study is approaching conclusion. The program in question represents a traditional approach to identification and referral of employees with alcohol problems. It is hoped that the results will provide a useful context within which to compare the effects of other more innovative approaches.
2. A study has been planned which will investigate the impact of a major third party assessment, referral, and treatment agency holding contracts with 11 large employers in the Toronto area.
3. Preparatory work has been completed to conduct a study of an innovative approach to employee assistance programming in the provincial government. This work has been and will continue to be conducted in concert with the Civil Service Commission and Ontario Public Service Employees Union who have formed a joint management-union committee for such projects.
4. Two major evaluations have been initiated in the area of prevention. Both are health promotion projects. One seeks to heighten employee awareness of alcohol use in the context of maintaining a healthy lifestyle while the other attempts to provide stress management skills to self-selected employees with a view to determining the impact of such training on alcohol, tobacco, and other drug use.

Drinking-Driving Research

Research is currently focussing on the epidemiological aspects of drinking-driving, the development and evaluation of countermeasure programs, and on relevant critical reviews of the state of the art. In the course of this work, there is collaboration with numerous interested parties, agencies, and ministries in the development of organized strategies to understand and combat the drinking-driving problem. The projects are described below.

Epidemiological Aspects of Drinking-Driving

Research is being conducted to assess the demographics and characteristics of drinking-driving offenders and the problems with current drinking-driving prevention in order to develop more feasible strategies. For example, a drinking-driving enforcement procedures survey of Ontario police forces is being conducted to evaluate the problems with, and views toward, such procedures. In addition, the first phase of a sentence severity and recidivism study has been completed.

The Development and Evaluation of Countermeasure Programs

A police training study has been completed. The Barrie police force

participated in training sessions to test a drinking driver detection program, newly developed in the U.S., and an informal didactic training program. There were no group (experimental vs. control) differences. However, overall arrest rates significantly increased with both training packages.

The initial effects of the increase in the drinking age in Ontario, including its effects on drinking-driving arrest and collision rates have been evaluated and were found to be minimal.

Work has begun in collaboration with police forces and the ministries of the Attorney-General, Solicitor-General, and Transportation and Communications on the evaluation of the 12-hour licence suspension law.

Research on Drug Control Methods

During the past year, research on the socio-legal effects of cannabis prohibition was continued through extension of a 1974 study of convicted cannabis users to areas outside Toronto. Important jurisdictional differences were found in sentencing. In general, sentencing was more severe in outlying areas and methods of processing offenders varied considerably. Short-term follow-up indicated the concern of users with the impact of a criminal record but few short-term consequences. If a new cannabis law is enacted a new study will be undertaken of its effects on users.

By way of securing baseline epidemiological data relevant to the evaluation of drug control strategies, the regular biennial survey of alcohol and drug use among Ontario students (grades 5 to 13) was conducted during the year. It was found that no drugs showed a significant increase in proportions of users and that there was a reduction in the use of solvents. A survey of adults (aged 18 and over) in Ontario showed a reduction in the reported use of tranquillizers and some occupational groups reported less cannabis use. The nature and frequency of cocaine use among students and adults was also examined on the basis of survey data, and it was found that cocaine users were primarily multi-drug users and more often reported alcohol or drug problems than non-users and users of cannabis. Plans are being made for a large-scale study of cocaine users and their problems.

International research activities included a variety of epidemiological and social policy projects relevant to drug control strategies. A final report of a study of drug use among non-student youth in a variety of countries was published by the World Health Organization. Collaborators in several countries supplied data which were analyzed at the Addiction Research Foundation as the coordinating centre for the project. Also, several studies were made involving cross-national comparisons. In one, an informant method of assessing drinking and drinking problems was tested in three countries, including Canada. It proved to give better data than that obtained in standard surveys. In another, the relationships between risk-taking and drug use were examined for Mexican and Ontario students.

Another international research activity involves the evaluation of the effects and problems of application of the two major international drug treaties--the Convention on Psychotropic Substances and the Single Convention on Narcotic Drugs. These evaluations are done by international working parties under the auspices of the Addiction Research Foundation, the International Council on Alcohol

and Addictions, and the World Health Organization. The evaluation of the Psychotropic Convention was completed, and the report and background papers published and made available to a variety of international agencies. Plans are underway for an evaluation of the Single Convention, with a working party meeting scheduled for September, 1982.

SOCIAL POLICY RESEARCH

In this area, the emphasis is on studies of the consumption of alcohol and other drugs in general populations and on the nature and prevalence of health damage and other adverse consequences associated with such consumption. Special attention is given to the role of environmental determinants of variation in prevalence. The ultimate practical goal is to provide a sound data base for effective primary preventive action. The following research lines, in support of this aim, were pursued in 1981-82.

Studies of Measures to Control Alcohol Problems

In the past year, a comparative investigation of the determinants and consequences of changes in alcohol control measures in a number of countries was concluded. This work was carried out in collaboration with several alcohol and drug research organizations. It has culminated in the publication of a final report entitled *Alcohol, Society, and the State* published under World Health Organization auspices by the Addiction Research Foundation. The report is based on a series of case studies, each focussing upon the structure and scope of the alcohol industry, the social history of alcohol control legislation and enforcement, and trends in consumption, drinking patterns, and alcohol problems in a particular country. Initial reaction to this two-volume work has been favorable. It represents a unique instance of international collaboration in this area of research.

Other work involved an assessment of the potential impact of a proposal presented to government to sell wine through grocery outlets in Ontario. It was concluded that consumption and alcohol-related problems would be likely to increase were such a proposal implemented.

Special attention was given in the past year to problems associated with alcohol use in Northern Ontario. Research on the effects of a strike in the mining industry indicated a decline in alcohol consumption under such conditions of economic constraint. Through the examination of existing socioeconomic impact studies, the effect of sporadic rapid economic development in northern areas on high rates of alcohol consumption and on alcohol problems was explored. A general review of alcohol problems in the context of resource development activities is in progress.

Of particular interest is a study of the Single Distribution of Consumption Theory which postulates that the prevalence of heavy drinkers cannot be reduced without a concurrent reduction in the overall level of alcohol use in the population at large. An alcohol management strategy will be used with heavy alcohol consumers and the secondary impact on the total population of consumers will be studied. This work constitutes the first attempted empirical test in a dynamic context of this important theoretical model of consumption.

Mortality Studies

The association of alcohol consumption with various morbid conditions has long been known from clinical and experimental work. The aim of our mortality studies is to add a quantitative description of such associations by establishing the amount of excess mortality attributable to different levels of consumption. During the past year, work has continued on separating the roles of heavy drinking and heavy smoking in the mortality from various causes and on the identification of the relative contribution of comparatively rare causes to the excess mortality of alcoholics.

Observations from experimental and clinical studies indicate an apparently protective effect of alcohol consumption on ischaemic heart disease. Concurrent with the mortality study, we are exploring whether these observations are reflected in an association between mortality from this disease and alcohol consumption in general populations.

In regard to health consequences of drinking, an important objective at the present time is to acquire the knowledge base for a biomedical definition of safe consumption. To achieve this aim, the health risks of drinking at levels below those ordinarily associated with alcoholism will have to be determined. As an initial approach, a study of longevity and causes of death in animals subjected chronically to varying doses of alcohol has begun.

Studies of Sex Differences in Alcohol- and Other Drug-Related Problems

A principal objective in this area is to examine available evidence concerning sex differences in patterns of use of alcohol, tobacco, and other drugs and to study the implications of this evidence for preventive strategies. Currently, special attention is being paid to methods employed in the primary prevention of alcohol problems in women and to the study of sex differences in the diffusion of smoking behaviors.

Studies of the Consumption of Benzodiazepines and of the Sociobehavioral and Physical Consequences of Long-Term Use

Monitoring the consumption of benzodiazepines and other prescribed psychotropics continues, with special emphasis on the identification and analysis of new or altered patterns of use. Two major factors are expected to result in further changes in patterns of psychotropic drug use: increased dissemination of information to both health professionals and the public regarding problematic consequences of use, and changing economic conditions which may result in higher levels of social stresses and ill health. Research on prescribed psychotropics continues to focus on high risk populations and on conditions which may predispose individuals to high consumption, such as lack of employment outside the home. As co-chairperson of the Federal-Provincial Working Group on CNS Drugs, the principal investigator in this area has been instrumental in the formulation of recommendations concerning research, education, community development, and legislative changes which both the provincial and federal levels of government are to consider for implementation.

STATISTICAL INFORMATION SECTION

This section collects statistical information on the use of alcohol and other drugs and on related problems and issues. A wide variety of statistics from official government statistics bureaus and large-scale market survey firms, including published and unpublished reports and specially commissioned statistical data, are now available to ARF staff.

In 1981, the first comprehensive analysis of Ontario hospital records was completed. It showed that, in 1978, there was a total of 46,700 inpatient cases treated in Ontario hospitals for alcohol and drug problems, as both primary and secondary (complicating) diagnoses.

The compilation of world-wide statistics on the production, trade, and consumption of alcoholic beverages is being conducted by this section for the World Health Organization. Data have been compiled from more than 150 countries and an analysis by geographical and economic regions was used as a background document for a recent meeting of the World Health Assembly.

The Statistical Information Section is also active in developing and improving alcohol and other drug statistics: by collaborating with the Clinical Institute in developing an improved patient data base; by providing consultative advice to the World Health Organization on data acquisition strategies in the field of international alcohol statistics; and by chairing a committee concerned with establishing interprovincially comparable alcohol and drug treatment statistics emanating from the provincial alcoholism and drug addiction foundations and commissions across Canada. This project is co-sponsored by Statistics Canada and Health and Welfare Canada.

Finally, the Section produces the *Statistical Supplement to the Annual Report*, an annual compendium of statistics on consumption, morbidity, mortality, crime and traffic accidents, and economic aspects of the use and abuse of alcohol and psychotropic drugs, including illegal drugs, as well as prescription drugs and other legal drugs such as tobacco and caffeine.

DOCUMENTATION SECTION

The Section has continued its maintenance and up-dating of archives on cannabis, amphetamines, and cocaine, and the two scientists of the Section continue to study critically the literature on selected topics. As a consequence of these documentation efforts, experts from around the world are provided with the most up-to-date and comprehensive findings of research concerned with the changes mentioned. The expertise of the Section has been deployed in various ways, including public education, education directed to professionals in the addictions field, briefing of the relevant departments of the Government of Ontario, writing of didactic and scientific papers, editing of the multi-author book: *Adverse Effects of Cannabis on Health and Behavior*, and continuing preparation of an annotated bibliography of the cannabis literature.

The cannabis archive, consisting of reprints and matching reference cards for all papers on cannabis, is fully comprehensive and regularly updated. At present, it includes approximately 7,000 titles, and appears to be the most complete collection of its kind in the world. The card catalogues for the amphetamine and cocaine

archives include approximately 7,100 and 2,000 titles, respectively. The actual reprints collected on these drugs are confined to those concerned with dependence and health aspects and amount to approximately 550 for each drug.

The Documentation Section has been fully involved in editing the proceedings of the ARF/WHO Scientific Meeting on Adverse Health and Behavioral Consequences of Cannabis Use, with the assistance of other ARF staff and the meeting participants. One of the Section's scientists is co-author of two of the review papers involved. This work is expected to be ready for publication by the autumn of 1982.

The *Annotated Bibliography on the Adverse Effects of Cannabis on Health* now contains approximately 1,700 titles and is expected to be ready for publication by March, 1983.

TREATMENT SERVICES

CLINICAL INSTITUTE TREATMENT SERVICES

The Clinical Institute, consistent with its mandate as a public hospital, is firmly committed to its role of providing treatment services to individuals experiencing difficulties related to their use of alcohol and/or drugs. Assessment and treatment services, as described below, are made available to all individuals presenting to the Institute, with a specific treatment plan being developed for each person based on the assessment findings, patient* expectations and preferences, and the availability of the recommended treatment either within the Clinical Institute or in the community.

The treatment programs of the Institute are influenced and shaped, to some extent, by its research and teaching and training objectives. With regard to research, the Institute attempts to incorporate new knowledge about the efficacy of various treatment programs and approaches generated internally and externally into the ongoing development and modification of its treatment services. Further, a primary objective of the Institute is to conduct research to improve the effectiveness and efficiency of treatment in the substance abuse field. As a consequence, there is a close inter-relationship between the treatment and research efforts of the Institute, with the ultimate goal of contributing to the development, testing, and validation of innovative, cost-effective treatment services. Similarly, the Institute, as a teaching hospital affiliated with the University of Toronto, provides training within the context of its treatment services to students in clinical chemistry, medicine, nursing, occupational therapy, pharmacology, pharmacy, psychiatry, psychology, social work, and other fields.

From an administrative perspective, treatment programs are divided into medical and sociobehavioral services, reflecting the Institute's multi-disciplinary approach to assessment and treatment. In effect, however, there is a high degree of collaboration, consultation, and cooperation among the clinical staff involved in the care of the patient, thus ensuring a thorough and efficient treatment approach.

* the terms "patient" or "client" may be used interchangeably

All patients seeking assistance are offered primary care, emergency care, and an opportunity to be assessed for assignment to the most appropriate treatment intervention. The primary care worker provides continuity of contact that is maintained throughout the individual's involvement in other treatment programs, supportive counseling, and crisis intervention services. All patients are thoroughly assessed prior to being assigned to a treatment program. This assessment includes a comprehensive medical and sociobehavioral screening to determine the most appropriate clinical intervention and the patient's eligibility for and willingness to participate in relevant treatment research programs.

There are, in effect, four possible treatment disposition possibilities:

1. referral back to the primary care worker if no more intensive or specialized treatment service is indicated or desired;
2. referral to a treatment program within the Clinical Institute;
3. referral to a treatment research program in the Institute (if the patient is eligible for and consents to participation in a research study);
4. referral to an appropriate service or treatment program in the community.

Sociobehavioral Treatment Services

Outpatient treatment services in the sociobehavioral area include two programs. The Outpatient Therapy Program provides a number of short-term (8 to 12 sessions) treatment alternatives including individual, marital, family, and group therapy, relaxation training and stress management, pre-vocational counseling, and leisure counseling. The Drug Therapy Program, consisting of the Counseling Unit and the Pharmacology Clinic of the Ambulatory Medical Services, provides treatment to individuals who require adjunctive pharmacotherapy: for instance, individuals abusing a narcotic-type drug (some of whom may be receiving methadone), individuals receiving an anti-alcohol protective drug (e.g. Antabuse, Temposil), and individuals being withdrawn from a benzodiazepine (e.g. diazepam).

In addition, there is a 20-bed Detoxification Unit, located away from the Clinical Institute at 410 Dundas Street, that provides service for both men and women during withdrawal from alcohol intoxication. The Unit operates on a non-medical model and provides a safe, supportive, and supervised environment. It is staffed by trained detox workers with medical back-up being provided by the Emergency Department of the Institute. Individuals are referred to a primary care worker for further service once the detoxification is completed.

Treatment Program Modifications

The remaining sociobehavioral treatment programs are currently being modified to further increase their effectiveness and efficiency and to make them accessible to larger numbers of clients. By April 1, 1983, the changes in current programs will be complete and there will be three day treatment programs serving specific patient populations and supported by a 24-bed inpatient unit to accommodate those patients requiring a protected, supportive, drug-free environment during their treatment. These three programs will consist of a program

modeled after the former Young Drug Abusers Program (the Inpatient Drug Unit or 4S Unit), a day treatment program for alcohol and prescription drug abusers (replacing the former Day Treatment Service), and an Employed Problem Drinkers Program (a transformation of the current Inpatient Program). Each of these services will provide a three-week treatment program on a 9 a.m. to 5 p.m., five-day per week basis to individuals referred from the Assessment Unit. Each program will accommodate patients attending on a day treatment basis as well as inpatients who are admitted at the Institute for the duration of their participation in the treatment program. These changes will allow the Institute more flexibility in responding to the particular needs of individual patients, will broaden the availability of inpatient care to patient groups for whom no inpatient service is currently available, and finally, will represent a movement towards more cost-effective treatment programming.

Medical Treatment Services

Outpatient medical services include the Ambulatory Medical Services and the Emergency Department. The former service conducts the medical component of the initial assessment of patients and provides ongoing medical management and follow-up of medical complications experienced by the patient. In addition to the primary medical care clinics, there are a number of medical subspecialty clinics, including general internal medicine, liver and gastroenterology, and neurology. Finally, psychiatric consultation and assessment services are also available. The Emergency Department provides 24-hour service for persons experiencing an acute crisis--whether medical, psychiatric, or psychosocial--related to their substance abuse. Such patients are subsequently referred to primary care for ongoing case management and involvement in assessment/treatment services.

The inpatient medical unit is a 20-bed hospital ward for patients with alcohol and/or other drug problems. It is an acute care facility and is not designed for chronic and long-term medical or nursing care. It does, however, constitute an essential initial step that may involve a longer-term rehabilitative program for the patient through the primary care, assessment, and other treatment services of the Institute.

TREATMENT SERVICE DEVELOPMENT

The Foundation defines Community Development as *"a process of working systematically with communities to help them translate the findings of research, experimentation, and program experience into plans and projects which improve levels of treatment and create more effective preventive measures."*

This description coincides more closely with the Foundation's goal for treatment service development than it does with more generic definitions of Community Development. The stated purpose of the Foundation's work in treatment service development logically remains the same for 1981-82 as it was for 1980-81. That is: *"to establish, in close collaboration with relevant groups and agencies, a province-wide network of coordinated community-based alcohol and drug treatment*

systems having basic components of assessment and referral, counseling, primary care, and follow-up and making provision for short-term alternative living arrangements (such as detoxification and recovery homes) for those requiring such care."

In providing these definitions it is important to underscore the crucial role of District Health Councils and other community-based groups in the development and reorganization of addictions services. The Foundation is convinced that it can achieve better outcomes by using its expertise to systematize, improve, and develop the existing treatment system than it can by providing direct treatment services. In this regard, Foundation staff are dependent upon the cooperation and support of many agencies and services.

The annual report for 1980-81 described in some detail progress made by the Foundation in developing plans, strategies, and materials to meet its treatment service objectives. This included identifying the number, geographic boundaries, and components of 37 discrete alcohol and drug treatment systems seen as necessary to achieve improved levels of prevention and treatment in Ontario. These judgments were based on a comprehensive, province-wide survey of more than 1,000 agencies which encountered substantial numbers of alcohol- and drug-related cases. The report (published in 1980) provides data on the prevalence of alcoholism morbidity and mortality, and examines service availability, caseload size, and referral patterns. These data, in combination with the Foundation's standard alcohol and drug assessment instrument, and its *Handbook for Primary Care*, continued to be of great value in our treatment service development efforts. They are being promoted throughout Ontario by staff involved in the development of the 37 treatment systems.

The materials described above, in combination with the annually updated *Directory of Alcohol and Drug Treatment Services in Ontario*, have enabled our staff to identify and train increasingly larger numbers of health and social service personnel in assessment/referral, outpatient treatment, and primary care. These areas of concentration represent the key components of the Foundation's model for treatment services. That is, each of the 37 discrete geographic areas identified as a "treatment system" needs to develop assessment/referral, outpatient treatment, and such capabilities as detoxification and primary care if it is to be successful in meeting local addictions needs.

In the 1980-81 annual report it was stated that it would be possible, if the Foundation's implementation strategies are succeeding, to demonstrate incremental progress on an annual basis.

The crucial first step in developing a coordinated and balanced treatment system is to establish assessment and referral capability. This is logical because before decisions about treatment can be made, careful consideration must be given to the needs of individual clients and their suitability for referral to local services. Using the existence of community-based assessment and referral capability as a criterion for measuring progress, it should be noted that during the 1981-82 fiscal year, eight assessment and referral centres were established or formally approved for implementation by communities as a direct result of ARF involvement. A similar number of primary care components were also established within this relatively brief period.

Since October, 1979, when the Foundation's treatment service development plan was formally implemented through staff of the Regional Programs Division, 15 assessment and referral centres have been established. By increasing the community's capability for systematic assessment and thereby making provision for appropriate referral of alcohol and drug dependent clients, duplication of services and needless costs should be gradually eliminated.

Although it may not be possible, due to local priorities and constraints, to continue progressing at this rate, we are encouraged since these achievements indicate that our model for treatment service development is gaining wider acceptance by District Health Councils and other community groups. This progress is noteworthy, since a rigorous review process exists requiring our staff to demonstrate that their plans, strategies, and projects for the promotion of treatment service components are consistent with the Foundation's best experience and advice and in line with community needs.

The following are a few examples of progress made in establishing treatment service components during 1981-82:

1. *Assessment and Referral Centre—Niagara*
In collaboration with the Niagara District Health Council, plans were finalized to establish an assessment-referral and primary care centre in the Niagara Region. The centre will be located in St. Catharines and an outreach program is planned for nearby areas including Niagara Falls, Welland, and Grimsby. This community-sponsored project received donations from local industries, and a modest grant from the Ministry of Health was requested. Plans are underway to hire a coordinator, and other staff required to operate the program will be seconded to the centre from several health and social agencies. Foundation staff are involved in training workers, developing an information system for the new facility, and establishing a protocol for program evaluation.
2. *Improvement of Alcohol Services in Haldimand-Norfolk*
Assessment and referral service was being provided by the county's Mental Health Centre. However, a need was identified to improve this service in line with the Foundation's advice. On this basis, arrangements were made for Foundation staff to train Centre personnel in the use of assessment instruments, the development of treatment plans, and the use of release forms and instruments for monitoring client progress.
3. *Peterborough Cooperative Assessment/Referral and Primary Care Services*
An assessment and primary care service, staffed on a rotating basis by community health and social service organizations, was established in Peterborough. Initially much of the assessment work was done by ARF staff but most of this responsibility was transferred to community auspices. Personnel for the primary care component are recruited through Alcoholics Anonymous. The ongoing role of ARF field staff includes training, monitoring impact on service delivery, and preparing a progress report for participating agencies and the District Health Council. The intent of the project is to demonstrate the benefits of coordinated assessment and primary care services.
4. *Essex County Case Identification and Case Management*
The purpose of this project was to improve addictions-related treatment services in Essex County by developing case identification skills within

selected agencies. Through the Foundation's 1980 provincial survey, 11 agencies expressed the desire to increase their service capability. A training program was developed to improve the case identification and case management skills of participants.

Employee Assistance Programs

It is important and useful to recognize the distinction between the Foundation's treatment service development work as it relates to developing and improving treatment "systems" and its initiatives related to Employee Assistance Programs. The primary target group for EAP is the "occupational community" which is comprised of management and labor. The main target group for the development of geographically-based treatment systems is the health and social service network of Ontario and its personnel. In spite of these distinctions, it is becoming increasingly apparent that the goals of these two program thrusts are compatible.

The Foundation's primary EAP goal is to increase the effectiveness of identification and referral for assistance of individuals in Ontario's workforce whose alcohol- and drug-related problems are interfering with their work performance. This goal is closely related to our efforts in developing treatment systems--addictions problems in the occupational community cannot be satisfactorily addressed in the absence of close linkages with the health and social service network.

This is particularly true in relation to the need for systematic assessment and referral of problem employees to appropriate treatment services. It is inadvisable for management and labor to develop their own assessment and treatment capability when they can contribute to and utilize existing services, unless no such options are available.

Based on this premise, the Foundation is promoting linkages between the health and social service network and the occupational community. This has resulted in the establishment of several addictions-related community-based groups and committees comprised of health and social service personnel and representatives of management and labor.

Approximately 25% of the resources of the Regional Programs Division are allocated to this area of work and about 200 organizations and agencies are actively assisted each year by the Foundation through the development of supervisory training programs and EAP policies. Our data indicate that over the past several years approximately 550 employers in Ontario have adopted formal employee assistance policies as a direct result of ARF contact.

Some noteworthy examples of the Foundation's EAP involvement during 1981-82 include:

1. *Training Curriculum for Trade Unionists*
Consistent with the working agreement struck in November, 1980 between the ARF and the Ontario Federation of Labour, a training curriculum was developed for trade unionists. These two-day employee recovery training sessions are offered regularly on weekends by the OLC and local District Labour Councils throughout Ontario. The program introduces participants to

the basic concepts of employee recovery programs and encourages development of such programs at the local level. Several of these weekend training sessions, involving an average of 20 participants, were conducted in locations such as Hamilton, Kitchener, and Belleville.

2. *The Occupational Health Nurses' Training Project—Niagara*

Two Foundation consultants developed and conducted a course to train primary care workers to act as case managers in the workplace. Nine full-time occupational health nurses from seven companies employing 6,000 people (Atlas Steels, Ford Glass, Union Carbide, John Deere, Fleet Industries, Newman Steel, and Stelco: Page-Hersey) took the six-week course in addictions assessment, primary care, and alcohol and drug dependency. After completing it, the nurses participated in a six-month practicum setting where they applied the knowledge and skills learned in the course.

Relevance to Ontario's System of Health Care

The Ministry of Health has promoted the importance of changing the provision of health care from an institutional response to one which is community-based and characterized by day care and out-patient treatment. The Ministry has advocated that within such a framework it is possible to maintain high standards of health care without runaway costs.

The Foundation's model for community-based treatment services seeks to increase awareness of the importance of early identification and to promote the standardized use of assessment techniques by physicians and hospital and other health and social service personnel. It also seeks to ensure that needs related to alcohol and drug dependency are both efficiently and effectively met through the coordination, mobilization, and redeployment of *existing* resources.

The approaches to treatment service development employed by the Foundation have been designed to complement Ministry policy. It is expected that other areas of the health and social service system in Ontario, besides those specifically related to addictions, will benefit significantly from the Foundation's work in treatment service development. The model we advocate for treatment services applies equally well to a range of health care problems and we are hopeful that our initiatives will contribute in some measure to the overall improvement of Ontario's health care system.

EDUCATION

PUBLIC EDUCATION AND INFORMATION

The Addiction Research Foundation, through its Education Resources Division, provides information to the public as well as to researchers, government, and other people who deal with problems of alcohol and other addictions. Education and information programs are also presented by other Foundation divisions and centres throughout Ontario.

The development of resource materials is a prime responsibility of the Education Resources Division, located in Toronto. Books, pamphlets, video programs, a professional news journal, and other educational resources are produced. The Division houses a highly specialized library--considered by many in the field to be the best of its kind in the world.

The Education Resources Division develops core public education programs directed to the prevention of alcohol- and other drug-related problems. The following Foundation goal statement shapes program and project development:

To increase public knowledge and awareness of the effects of alcohol and drugs, the health, economic, social, and other consequences of their problematic use, and to encourage the adoption of preventive measures through the identification of public health benefits.

Emphasis will be placed on:

- 1. determination of knowledge levels, attitudes, and selected behaviors of particular target groups;*
- 2. determination of target group characteristics;*
- 3. seeking positive changes in public attitudes and behavior concerning alcohol and drugs, through targeted educational efforts directed particularly to young people in school, parents, teachers and others in the educational system, selected health professionals, mass media personnel, Members of the Legislature and others who contribute to policy formulation;*

4. *particular substances, notably alcohol, cannabis, and tobacco;*
5. *the development of high quality, factual, scientifically-based information/education materials verified by the Addiction Research Foundation scientists and outside authorities.*

In the past few years, the Foundation has been more precisely defining its public educational work. In 1981, the task force on Public Education and Social Policy presented specific recommendations concerning targeted audiences. A range of options exists: from doing nothing at one end, to high profile advocacy at the other. These two extremes are inappropriate for an organization which gives credence to the proposition that public education enables people to make informed decisions and effect change.

Planning for the 1980s focuses ARF's public education efforts towards the fulfillment of the following:

1. To alert people and to inform them about the consequences of alcohol and other drug use.
2. To ensure the development of programs that will assist in halting or reducing the harmful use of alcohol and drugs in Ontario.
3. To change people's attitude, away from supporting continued liberalization---towards more healthful approaches.
4. To enhance the Foundation's credibility and to inform the public through research-based information and advice.
5. To involve other government departments and other organizations in working towards Foundation objectives.

Prevention programs focus on several priority areas. An important target group includes young people: those in the school system and those in the early years of the work situation. The mass media is an extremely important group and they must have access to scientific information. Work is also planned with regulatory bodies of the mass media, and efforts will also be directed toward key opinion-makers and influencers, federal and provincial governments, statutory foundations, educational television, and other target groups.

The Education Resources Division operates through two departments: Development and Production and Information and Promotion.

Development and Production

Audio/Visual Productions

In December, 1981, *Caffeine*, was selected as "Best Videotape of the Year" by the Ontario Hospital Association/Health Care Public Relations Association. This videotape also won a Certificate of Recognition from the Yorkton Short Film and

Video Festival in Saskatchewan. Also in the past year, a special series of five half-hour programs on various alcohol- and drug-related topics was distributed to and broadcast by 40 cable television stations across Ontario.

The Audio/Visual Productions section plays a key role in developing mass educational programs and mass media presentations. Videotapes, audiotapes, slide presentations, and graphic material are but some of the products created, produced, and distributed to specific target populations--health care professionals, students, patients, occupational programmers, and the general public. Film, audio, and video clip material is made readily available to the electronic media as a means of conveying information on alcohol and other drug issues to the public.

During 1981-82, 38 videotapes, 28 audiotapes, and 12 slide/sound presentations were produced. Subjects dealt with on videotape included tobacco, caffeine, cannabis, alcohol use by women, and medical aspects of alcohol and drug abuse. Audiotape subjects included drug use during pregnancy and relaxation techniques. Youth and drugs, immigrant women and drugs, and the R.I.D.E. program were some of the subjects covered in slide/sound presentations.

In conjunction with the Foundation's Education Research Section, three videotapes on cannabis were produced for field evaluation with high school students. These programs dealt with cannabis-related health issues and legal implications.

Seasonal public service radio and television spots are regularly produced and distributed to stations across Ontario. Essentially a proactive effort of the section, some products, however, are produced at the request of and/or in collaboration with government departments and other organizations such as the Canadian Cancer Society. In the past year, 10 winter and six summer radio spots were distributed to 130 radio stations, and four public service video announcements were produced for telecast by Ontario television stations.

Audio/Visual Productions staff provide consultation, and technical advice and support, to other Foundation departments, to other individuals, and to community organizations. A "slide bank" containing more than 4,000 color slides is used extensively by community service clubs, police community relations staff, and others as a convenient and effective way of supplementing educational events and presentations.

Publications Production

Publications reflect the diverse nature of the Foundation's research, education, community development, and other programs, and thus include a wide range of working papers, pamphlets, books, conference proceedings, special reports, special print materials, and occasional projects such as task force reports and position papers. Many of these respond to shifting public concerns, and others result from new research-based knowledge and initiatives by Foundation scientists and executives, and other professionals in the addictions field. Manuscripts published by the Division's publishing activity originate in other divisions of the Foundation, within the Division itself, and from external sources.

Completed during the reporting year were:

Books:

Proceedings and Summary Report of the International Working Group on the Convention on Psychotropic Substances

Behavioral Management Training Manual

A two-volume Report of the International Study of Alcohol Control Experiences

Alcohol, Society, and the State: A Comparative Study of Alcohol Control

Alcohol, Society, and the State: The Social History of Control Policy in Seven Countries

Brochures:

A Guide to Drug and Alcohol Law for Canadians Information Review

Cannabis, Health and the Law (French and English)

Payroll Stuffers (set of 4)

Working Paper:

Estimating the Number of Alcoholics in Ontario—An Analysis by County

Also nine pamphlets and brochures were revised during the year and 20 educational materials were reprinted.

As part of ERD's service function to other divisions of the Foundation, seven pamphlets, books, and brochures were completed during the reporting year. These included a *Sourcebook on Primary Care*, an EAP pamphlet, and a *Patient Information Brochure*.

The Journal

In 1981-82, teachers and their students were selected for special attention in a series of six, monthly, four-page special inserts to *The Journal*, entitled, "Kids and Teachers." Each supplement included an advice column and alcohol-related lesson plan material for use by teachers, and a section for young people with cartoons, crossword puzzles, quizzes, and interviews. The first six popular supplements were distributed to a total of 106,306 teachers and schools.

The Journal, a monthly tabloid newspaper, was introduced in 1972 to report issues and events of importance in the addictions field and to reflect the wide range of opinions in that area. It is designed to keep professionals in Ontario and beyond aware of current developments at the provincial, national, and international levels. A broad international readership has developed over the years.

The Journal is highly regarded for the balance and soundness of its editorial content. Accuracy and relevance, combined with cost effectiveness, remain the main attributes of this publication. It continues to maintain its high readership, and in 1981-82, approximately 288,000 copies were distributed in Canada and abroad.

Science writers, scientists, and other professionals throughout the world contribute materials to this 16-page newspaper. News columns, features, special inserts, and letters to the editor routinely cover such areas as treatment, research, education, prevention, law enforcement, and social and legal policy. Licit drugs, such as alcohol and pharmaceuticals, as well as illicit drugs are covered.

The Journal Editorial Board meets twice a year to review content and contribute viewpoints on developments in the field.

A larger percentage of *The Journal's* readers are professionals with direct access to the general public--educators, physicians, policymakers, and law enforcement personnel. The print and electronic media is another important target group, and in 1981-82, more than 13,000 contacts were made with the media. A significant number of references and reprints derived from *The Journal* have been translated and published throughout the world in more than seven languages.

Information and Promotion

Marketing

The marketing and promotion of Foundation educational materials in 1981-82 resulted in a 20% increase in revenue. Sales volume increased by 5% to 1,058,685 pieces from 1,003,760 items in the previous year. The revenue generated from these sales offset the production and distribution costs of the 1,415,088 pieces of educational materials disseminated free-of-charge throughout Ontario.

Computerized mailing lists of various target groups are maintained and constantly improved. This direct mail marketing program comprises 80,000 contacts and includes mailing lists for *The Journal*, and for *Projection*, the Foundation's audio/visual assessment service.

In addition to direct mail promotion, the marketing and distribution function includes a unique distribution network through Regional Programs Division's centres, other provincial and state agencies, federal government health departments, and the World Health Organization. Promotion is also facilitated through the ARF Bookstore, the Exhibits and Special Events program, and through advertising in *The Journal* and other appropriate newspapers and periodicals.

Reprints of scientific and research articles by Foundation staff that appear in non-ARF journals and periodicals are ordered and stocked by Marketing for free distribution to appropriate libraries and scientists. In 1981-82, approximately 6,000 of these were sent, on request, to interested scientists and professionals worldwide.

Exhibits

During 1981-82, the Foundation's educational materials were exhibited at 12 professional conferences and public events and, in cooperation with the Regional Programs Division, at 12 public information exhibits. In addition, the Exhibits program staff organized the logistics of two international meetings including the ARF/WHO Scientific Meeting on Adverse Health and Behavioral Consequences of Cannabis Use. Also during the year, itineraries, tours, and an orientation of the Foundation were provided to 275 visitors representing 14 different countries.

ERD's exhibit and display program provides an organized, systematic method of distributing information on an interpersonal basis to professionals and the public through a variety of scientific exhibits and public event displays. In addition to these displays, this unit provides support to Marketing Services through the provision of mobile displays and the dissemination and promotion of ARF materials.

To increase public awareness of alcohol- and other drug-related issues, the Foundation displays at the grassroots level, at local expositions, and community fairs throughout Ontario.

The promotion, sale, and free distribution of educational materials to professionals took place at a variety of conferences in 1981-82. These included province-wide meetings of the Ontario Public Health Association, the Registered Nurses Association of Ontario, and the Input Conference on Occupational Alcoholism.

The marketing of Foundation products beyond Ontario included attendance at meetings of the Canadian Addictions Foundation, the National Association of Alcoholism Counsellors, and the Association of Labour/Management Administrators and Consultants on Alcoholism.

Established in 1977, the Lecture/Seminar Series was designed to keep ARF staff and other interested parties regularly posted on developments in the field of alcohol and other drugs. The Exhibits department is responsible for coordinating these lectures and presentations and during 1981-82 attendance was 80 to 90 people per event. Eight lectures/seminars were held during the reporting year.

Information Centre

During 1981-82, the Information Centre received 20,089 telephone inquiries and 1,169 written requests were answered by means of public education materials. Information Specialists responded to 246 indepth requests for specific information, and 1,468 requests received via the telephone were satisfied.

The Information Review titled *A Guide to Drug and Alcohol Law for Canadians* was published. The public frequently asks questions concerning the law and this Review addressed those questions in an easily readable format. *The Directory of Alcohol and Drug Treatment Resources in Ontario, 1982* was compiled, containing detailed information on more than 250 programs in Ontario and listing other resources which are available throughout the province. The *Alcohol Knowledge Survey* and *Drug Knowledge Survey* were updated. These surveys clarify popular misconceptions about drugs and can be used as self-teaching devices or as discussion starters. Staff in the Information Centre have also commenced work on a series of short information releases which are intended to supplement the *Information Review* series with short-life information.

Because of constant public interaction, the Information Centre, and other ARF centres throughout Ontario, are in a position to suggest priorities based on information needs expressed by Ontario residents. By functioning in this response mode to inquiries, the Information Centre saves the specialized time of scientists, clinical interventionists, and others who would otherwise be engaged in information transmission in a non-systematic way. Questions received are recorded and analyzed. The resulting information is used in the development of public education

materials for specific target readership on priority topics of concern. The Information Centre acquires, processes, and updates information and materials for resource files. The document retrieval system now stores 1,395 items. Enhancement of this storage and retrieval system is an ongoing activity throughout the year.

Library

A comprehensive review of Library operations and services was undertaken during 1981-82. During the coming year, several of the recommendations will be implemented. The Library will be reorganized and streamlined.

During the past fiscal year, there were more than 5,000 volumes loaned and 3,265 requests for 16mm films. The Foundation's Library obtained 3,777 items on inter-library loan from university and medical libraries. The Library also prepares an *Acquisition List* on a monthly basis for distribution to approximately 800 subscribers. This past year, 1,238 requests were received and 6,497 items were loaned out through the use of this list. Services such as retrospective online searching of bibliographic data bases and the compilation of short bibliographies were also offered.

The Foundation's Library continues to maintain its reputation as a unique repository for alcohol and drug education materials with one of the best collections of books, periodicals, microforms, and films for professionals and public audiences. Some 16,605 books and reports, 350 journal subscriptions, 12,500 reprints, 2,250 bound periodicals, and 239 16mm films are available.

Media Relations

Cannabis topped the list as the most frequent media inquiry again this year. Proactive work by Media Relations on cannabis use included presentations of information from the *International Study on Adverse Health and Behavior Consequences of Cannabis Use*; the *Report of an ARF/WHO Scientific Meeting on the Adverse Health and Behavioral Consequences of Cannabis Use; Cannabis, Health, and the Law*; and the Foundation's statement on cannabis use. The ARF/WHO Report launched a month of intensive national and international media coverage.

Other areas of major interest to the media included drinking and driving, alcohol and other drug use by teenagers, smoking, prescription drugs, alcohol-related health care costs, drinking in connection with leisure-time sports, and the kinds of treatment available for alcohol- and other drug-related problems.

Media inquiries increased by about 15% in 1981-82. For the print media, international coverage expanded considerably while Canadian coverage maintained the increased level of the previous year.

Ontario-wide media packages released in June, July, August, and December initiated inquiries and coverage about the effects of alcohol on lifestyle and on motor vehicle operation. An additional media package was prepared for a joint ARF-Metro Toronto Police news conference to launch the annual Christmas spot checks. The package included logos, news releases, public service radio spots,

slogans, and a video news clip. Considerable media attention was generated in December from media material explaining the Foundation survey on alcohol and drug use by Ontario students in 1981. In total, 10 news releases were distributed to all Ontario media, and other Canadian and international contacts.

"Cannabis" and "On the Rocks", two ARF public service announcements for broadcast television, were aired by several Ontario stations. Television news clips, also produced internally by the Audio/Visual Productions section, generated interest in the student survey of alcohol and drug use, and considerable interest in launching the Metro Toronto Police Christmas spot checks. A bank of stock television footage is now available for broadcast use.

PROFESSIONAL EDUCATION AND TRAINING

The Foundation's professional and training programs address Foundation goal #9:

To increase the knowledge and skills of professionals and other workers with respect to prevention, treatment, and research in the alcohol and drug field, through the development and operation of education and training programs.

While its education and training activities focus on Ontario personnel, the Foundation is recognized internationally as one of the world's leading training centres. This recognition was demonstrated in 1978 when the Foundation was designated by the World Health Organization as a collaborating centre for research and training.

Education/training programs are carried out by virtually all Foundation divisions, both in intramural and community settings. The Foundation's School for Addiction Studies is its focal point for professional instruction. The Clinical Institute, a multi-disciplinary research and teaching hospital of the University of Toronto, provides a multi-focussed setting for the training of undergraduate and graduate students in the health care professions. Through its regional network, the Regional Programs Division provides training to community workers consistent with Foundation goals and priorities. Due to the large number of programs conducted, this section will provide only highlights of the Foundation's education/training effort.

Student Training

The Foundation provides training placements for community college, undergraduate, graduate, and post-doctoral students to prepare them to work more effectively in functions related to the alcohol/drug field. In 1981-82, 127 students from universities and colleges were placed for training in Foundation programs. These included 21 students from community colleges, 37 undergraduate, 61 graduate, and eight post-doctoral students.

By division, students were placed in the Clinical Institute (80), the Social and Biological Studies Division (19), the Regional Programs Division (12), the School for

Addiction Studies (9), the Administrative and Support Services Division (5), and the Education Resources Division (2).

Disciplines and vocations of students included medicine (37), social work (21), pharmacology (19), psychology (12), and occupation/physio and recreation therapy (10). Students were also placed from nursing, adult education, chemistry, pharmacy, and a range of other fields.

College and University Courses

For many years, professional staff of the Foundation have held cross-affiliations with Ontario universities and colleges. In 1981-82, with ranks ranging up to full professor, Foundation staff taught or substantially contributed to the teaching of 77 courses reaching more than 4,000 students.

Clinical Institute staff taught 42 courses, 23 of these at graduate and post-graduate levels. Four university courses were taught jointly by staff of the Clinical Institute and the Social and Biological Studies Division. In addition, university courses were taught by the Regional Programs Division (12), the Social and Biological Studies Division (9), and the School for Addiction Studies (2).

Examples of courses taught by the Clinical Institute are: addictive diseases (Year III Medicine, University of Toronto); elective clinics in comprehensive medical assessment and management of alcoholism and drug dependence (Medicine, University of Toronto); medicinal chemistry of psychoactive drugs (Pharmacy, University of Toronto); clinical pharmacy (Pharmacy, University of Toronto); psychiatric nursing (Nursing, Humber College); approach to treatment of addictions (Occupational Therapy, University of Western Ontario); and research in social work (Social Work, University of Toronto).

Examples of courses taught by staff of the Social and Biological Studies Division are: graduate pharmacology (Pharmacology, University of Toronto); research methods (Sociology, University of Toronto); drug use and crime (Sociology, University of Toronto); and behavioral pharmacology (Pharmacology, University of Toronto).

Course examples for the Regional Programs Division are: modern sociological theories (Sociology, Laurentian University); management and human resources (Business, Queen's University); causes of drug dependence (Adult Education and Social Work, McMaster University); addictions and the family (Adult Education, McMaster University); addictions and psychopathology (Brock University); and group therapy (psychology, University of Western Ontario).

Examples from the School for Addiction Studies are: interdisciplinary perspectives on drug dependence (Social Work, University of Toronto); and orientation to the field of addictions (Child Study, University of Toronto).

Study placements and courses equip future generations of professionals to more effectively contribute to alcohol/drug research, treatment, and other fields of service for the people of Ontario.

Continuing Education and Development

In addition to student training, the Foundation places a major emphasis on upgrading the knowledge and skills of Foundation and community personnel. Programs in this category reached approximately 16,000 participants: Regional Programs Division (11, 967); the Clinical Institute (3,000); the School for Addiction Studies (600), and the Education Resources Division (360).

The School for Addiction Studies works in conjunction with staff from other divisions to provide training and other education programs about addictions and the management of associated problems. Targets for training are ARF staff professionals and other workers in Ontario, faculty and students of health and health-related divisions of Ontario universities and colleges, and selected students, professionals, and other workers from other countries.

In 1981-82, the School conducted 27 formal courses, workshops, and seminars in such areas as: Fundamental Concepts in the Addictions Field; Seminars for Scientists; Alcohol, Other Drugs, and the Law; Pharmacology and Drug Abuse; Orientation to Program Evaluation; Prevention Strategies; Communication and Change Strategies; and Perspectives on Employee Assistance Programming. Members of all ARF divisions participate in the planning and teaching of these programs.

The Regional Programs Division held an assessment-referral, primary care training program for 35 professionals in the Peterborough area. Other programs conducted by this Division included: a peer drug education course for 258 health teachers in the Halton area; assessment training for 100 Metropolitan Toronto Probation and Parole staff; drug misuse and the elderly (Thunder Bay); drinking and driving (Sault Ste. Marie); primary care (Niagara); and addictions and the criminal justice system (Hamilton).

The Clinical Institute continued its ongoing sub-specialty training program for post-graduate trainees on the medicine of alcoholism and drug dependence. Approved by the Royal College of Physicians and Surgeons, this is the only program of its kind in Canada. A training program on drug misuse patterns and treatment methods was given to 160 Year IV pharmacy students, and 160 members of the Ontario Registered Nurses Association examined the nurse's role in the control and administration of psychotropic drugs and discussed minimal medication approaches for young drug abusers. Institute staff contributed a section on substance abuse to the Canadian Association of Occupational Therapists' Conference and to a Life Stress Symposium held at the Clarke Institute of Psychiatry.

Staff of the Social and Biological Studies Division participated in a four-day program for 60 police, physicians, legislators, and lawyers on drinking/driving countermeasures. A program in Ottawa for statisticians focussed on the development of a minimum basic data set and a seminar series on Community Medicine was held for 40 faculty members from the U. of T. Division of Community Health.

The Administrative and Support Services Division conducted semi-monthly computer services workshops for ARF and community personnel, dealing with topics such as systems design, form design, and statistical computations. The Education Resources Division managed the ARF Lecture/Seminar Series, consisting of seven programs with a total audience of more than 600 persons.

Collaborative Training and Development Programs

Many of the Foundation's training and development activities are conducted in collaboration with other agencies and organizations. Approximately 6,400 persons were reached through collaborative programming involving the Regional Programs Division (3,760); the Clinical Institute (2,000); the School for Addiction Studies (385); and the Social and Biological Studies Division (250). Highlights of the Foundation's collaborative education/training activities follow.

The Social and Biological Studies Division collaborated with the Alberta Alcohol and Drug Commission to conduct a program on marijuana effects and issues for nurses, teachers, and union representatives in Alberta.

The Social and Biological Studies Division and the Clinical Institute collaborated with the School for Addiction Studies in producing a seminar on reinforcement of ethanol self-administration.

The Clinical Institute, in conjunction with the University of Toronto, participated in a lecture series for 61 residents in gastroenterology at the Toronto General Hospital.

Clinical Institute staff, in collaboration with the U. of T. Faculty of Pharmacy, conducted a workshop to update the knowledge of practising pharmacists on adverse drug reactions and pharmacological changes associated with the use of barbiturates, benzodiazepines, and sedative hypnotics.

In association with the Ontario Public Health Department and the Regional Programs Division, staff of the Institute participated in a workshop for public health nurses and others on assessment and management of alcohol- and drug-dependent individuals.

In collaboration with the Industrial Accident Prevention Association, the Regional Programs Division held a conference for management and union staff in Peterborough, focussing on employee assistance programming. This program related to the ongoing EAP training project jointly sponsored by ARF, the Canadian Labour Congress, and the Ontario Federation of Labour.

With Cambrian College, Sudbury Algoma Hospital, National Health and Welfare, Health and Social Services, Alcohol and Drug Concerns, Adult Protection Services, Sudbury Parks and Recreation, and the Ministry of Community and Social Services, Regional Programs staff participated in a workshop on assessing general health resources and services available to persons potentially disabled by alcohol use.

With the Council for Action on Alcohol and Other Drugs, Foundation staff conducted a workshop on treatment services development for 225 staff of London human service agencies.

The School for Addiction Studies, the Regional Programs Division, and the Clinical Institute, in collaboration with the Salvation Army, conducted a five-day course on basic counseling skills for 50 Salvation Army workers.

The School and the Regional Programs Division, in collaboration with the Children's Aid Society, developed an addictions seminar for 20 Children's Aid Society workers in Stratford.

International Programs

As a collaborating centre of the World Health Organization, the Foundation cooperates in a variety of education/training programs coordinated through the School for Addiction Studies.

The Foundation provides technical assistance and planning support to the Caribbean Institute on Alcoholism. Since its inception in 1974, the Caribbean Institute has afforded training to more than 600 professionals from virtually all of the Caribbean islands.

The Foundation collaborates with the International Council on Alcohol and Addictions (ICAA) and Benin University, Nigeria, on a two-week national training course for Nigerian professionals. In collaboration with WHO, the Foundation has also provided technical assistance to the Government of Thailand in developing a national training program for more than 500 drug dependence workers.

In 1981-82, the Foundation provided assistance to the ICAA in the planning of international institutes in Austria and in Thailand.

Management and Support Staff Training

In 1981-82, the Personnel Department offered eight workshops to 115 Foundation managers and supervisors as well as other professional and support staff. Subject areas included Communications/Negotiations, Scientific Writing, Management Skills for Women, a Support Staff Seminar, Presentation Skills, and Project Management.

The Personnel Department also conducted a new staff orientation for approximately 100 new employees.

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ALCOHOLISM AND DRUG ADDICTION RESEARCH FOUNDATION
STATEMENT OF OPERATIONS (UNAUDITED) FOR THE YEAR ENDED MARCH 31, 1982
BY PROGRAM FUNCTION (IN DOLLARS)

APPENDIX A

DIVISION	P R O G R A M F U N C T I O N										DIVISION	TOTALS
	RESEARCH			TREATMENT	COMMUNITY DEVELOPMENT	EDUCATION		PROFESSIONAL				
	TREATMENT RESEARCH		PROGRAM DEVELOPMENT			PUBLIC						
	BIOMEDICAL	BEHAVIORAL SOCIOBEHAV	BIOLOGICAL				SOCIAL					
Social and Biological Studies	-	-	1,248,155	1,363,049	-	-	-	-	-	2,611,204	10.5%	
Clinical Institute	1,112,528	1,279,408	548,318	1,319,141	2,638,281	-	-	1,048,955	-	7,946,631	31.9%	
Regional Programs	-	-	-	525,154	-	-	4,434,640	-	875,258	5,838,052	23.4%	
Education Resources	-	-	-	-	-	-	-	831,550	1,247,326	2,078,876	8.4%	
School for Addiction Studies	-	-	-	-	277,776	-	-	576,919	-	854,695	3.4%	
	1,112,528	1,279,408	1,796,473	3,207,344					2,122,584			
	2,391,936		5,003,817									
FUNCTION TOTALS		7,395,753			2,916,057	4,434,640		4,580,008		19,326,458		
		29.7%			11.7%	17.8%		18.4%			77.6%	
Exec. and Admin.*										5,580,270	22.4%	
OPERATING TOTAL										24,906,728	100.0%	
INCOME FROM DIVISION DÉPARTMENTS												
INCOME--MINISTRY OF HEALTH GRANTS												
EXCESS OF INCOME OVER EXPENSE												
1,402,451												
23,756,085												
251,803												

* The Executive and Administration Division consists of senior administrative staff and all centralized support services for the Foundation including Accounting, Computing, Personnel, Housekeeping, Utilities, Food and Material Services, as well as all expenses for renovations to owned properties.

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ARF STAFF PUBLICATIONS—1981

JOURNAL ARTICLES, THESES, BOOKS, AND BOOK CHAPTERS

1. Addiction Research Foundation. *An Initial Interview for Clients with Alcohol-and/or Drug-Related Problems*. Toronto: Addiction Research Foundation, 24 pp., 1981.
2. Addiction Research Foundation. *Primary Care in Community-Based Health Care Delivery: A Sourcebook for the Community Professional*. Toronto: Addiction Research Foundation, 22 pp., 1981.
3. Addiction Research Foundation/World Health Organization. *Report of an ARF/WHO Scientific Meeting on Adverse Health and Behavioral Consequences of Cannabis Use*. Held in Toronto, 30 March-3 April, 1981. Toronto: Addiction Research Foundation, 72 pp., 1981.
4. Addiction Research Foundation. *Report of the "International Working Group on the Convention on Psychotropic Substances, 1971": September 8-12, 1980: Rapport du "Groupe de travail international sur la convention de 1971 sur les substances psychotropes": 8-12 septembre 1980: Informe del "Grupo de Trabajo Internacional sobre el Convenio sobre Sustancias Sicotrópicas, 1971": 8 a 12 Septiembre de 1980*. Toronto: Addiction Research Foundation, 75 pp., 1981.
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APPENDIX C

OFFICES OF THE ADDICTION RESEARCH FOUNDATION

ARF Headquarters	33 Russell Street, Toronto, M5S 2S1	(416) 595-6000
Belleville	248 Bridge Street East, K8N 1P1	(613) 962-9482
Chatham	259 Wellington Street West, N7M 1J9	(519) 354-1000
Cornwall	General Hospital, K6H 1Z5	(613) 932-3300 ext. 238
Hamilton	131 John Street South, Suite 201, L8N 2C3	(416) 525-1250
Hamilton Regional Office	75 James Street South, L8P 2X9	(416) 527-8166
Kapuskasing	6 Queen Street, P5N 1G7	(705) 335-6081
Kenora	P.O. Box 1040, 700 Lakeview Plaza, Highway #17-West, P9N 3P7	(807) 468-6372
Kingston	309 Alfred Street, K7L 3S4	(613) 546-4266
Kitchener	639 King Street West, N2G 1C7	(519) 579-1310
London	414 Dufferin Avenue, N6B 1Z6	(519) 433-3171
London Research Centre	c/o University of Western Ontario, N6A 3K7	(519) 679-3042
Niagara	10 Ormond Street North, Thorold, L2V 1Y7	(416) 227-3203
North Bay	288 Worthington Street West, P2B 3B4	(705) 472-3850
Orillia	41 Frederick Street, L3V 5W6	(705) 325-6161
Ottawa Regional Office	283 McLeod Street, K2P 1A1	(613) 238-8233
Ottawa/Carleton	880 Wellington Street, Suite 800, K1R 6K7	(613) 238-8230
Owen Sound	1198 6th Avenue West, Room 228-230, N4K 5H2	(519) 371-1861
Pembroke	Pembroke General Hospital, K8A 1G8	(613) 732-2811
Peterborough	318 Stewart Street, K9J 3N1	(705) 748-9830
Provincial Employee Recovery Program	545 King Edward Avenue, 2nd Floor, Ottawa, K1N 6N5	(613) 238-4772

Regional Programs Division	33 Russell Street, M5S 2S1	(416) 595-6046
Sarnia	442 Christina Street North, N7T 5W2	(519) 337-9611
Sault Ste. Marie	464 Albert Street East--Walrus II, P6A 2J8	(705) 256-2226
Simcoe	191 Queensway West, Suite 1, N3Y 2M8	(519) 426-7260
Sudbury Regional Office	144 Pine Street, Suite 203, P3C 1X3	(705) 675-1181
Sudbury	144 Pine Street, Suite 203, P3C 1X3	(705) 675-1195
Thunder Bay	505 North Lillie Street, P7C 4Y8	(807) 622-0609
Timmins	P.O. Box 1720, c/o Northeastern Psychiatric Hospital, South Porcupine, P0N 1H0	(705) 235-3326
Windsor	2090 Wyandotte Street East, N8Y 1E6	(519) 253-1146
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Metro Toronto Regional Office	175 College Street, M5T 1P8	(416) 595-6126
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Durham	44 Bond Street West, 10th Floor, Oshawa, L1G 1A4	(416) 576-6277
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